

# MASTER THESIS

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*The smaller the better? Risk management  
systems in SpareBank 1 Nord-Norge.*

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## Sammendrag

Jeg ønsket å studere risikostyring i min masteroppgave, og mer spesifikt hvordan systemene blir utviklet og implementert i en bank. Grunnen til at jeg ønsket å studere dette er at det er et veldig interessant område hvor det har skjedd mye endringer de siste årene, og det er også noe usikkerhet rundt fremtiden. I tillegg har de fleste tidligere studiene på dette temaet blitt gjort på større, internasjonal banker, og jeg ønsket derfor å studere en mindre bank for å se om det er mange forskjeller på hvordan de jobber. Basert på dette er mitt forskningsspørsmål:

*”Hvordan blir risikostyringssystemene utviklet og implementert i SpareBank 1 Nord-Norge?”*

ERM rammeverket blir anbefalt for banker i mange av de tidligere studiene på området, og jeg har derfor i hovedsak basert mine teoretisk referanser på denne teorien. SpareBank 1 Nord-Norge viste seg derimot å ikke bruke dette rammeverket, selv om jeg fant noen likheter.

Når det kommer til utviklingen og implementeringen av risikosystemene, så blir utviklingen for det mest gjort innen SpareBank 1 alliansen, og de som jobber på hovedkontoret er ikke noe særlig med på denne prosessen. For utviklingen av bankens policy så blir dette arbeidet utført hos de individuelle bankene, og har ingenting å gjøre med alliansen. Når systemene og policyen skal bli implementert så blir dette gjort i bankene, and personer fra hovedkontoret reiser rundt til rådgiverne og presenterer systemet og hvordan dette skal bli brukt, og rådgiverne kan stille spørsmål og få støtte fra hovedkontorer. Implementeringen er derfor en veldig interaktiv prosess.

## **Preface**

During the previous semesters of my master education I have gained an interest for understanding how changing and uncertain environments affects the systems and models we find within management control. I also had a desire to study a bank for my thesis, as I find this industry interesting and relevant. Combining these two things, risk management popped out as an area where a lot of changes have been happening and there is also some uncertainty about the future, and I therefore chose this as my topic for the thesis.

SpareBank 1 Nord-Norge is a smaller, regional bank, that stands out compared to the banks in the earlier studies done on this topic, and I am very grateful that I could gain contact with them, and that they wanted to be a part of my master thesis. Everyone I met at their main office in Tromsø was very welcoming to me, and the interviews were very interesting. The interviewees were very open to talking to me, and I am grateful for them sharing all their experiences. These interviews helped me a lot, and they inspired me when I moved forward with my thesis, so I want to send a big thank you to everyone at the risk department of SpareBank 1 Nord-Norge

I also want to thank my supervisor, Elena Dybtsyna, for all her great feedback on my thesis. Her comments really help me to move forward and make this thesis the best it could be.

Silje Katrine Eivik Lorentzen

## Abstract

For this thesis, I wanted to study risk management, and how the systems are developed and implemented in a bank. The reason I wanted to study risk management is that it is an interesting field where a lot of changes have happened over the later years, and there is some uncertainty in the future. In addition, most of the previous studies on the topic I could find is of larger and international banks, so I therefore wanted to study a smaller bank to see if there is a lot of differences. Based on this, my research question is:

*“How are the risk management systems developed and implemented in SpareBank 1 Nord-Norge?”.*

The ERM framework were recommended for banks in many of the previous studies, and I therefore mainly based my frame of reference on this theory. SpareBank 1 Nord-Norge however does not use this framework, even though I found some similarities.

When it comes to the development and implementation of the risk systems, the development of this is mainly done within the SpareBank 1 alliance, and the people working at the main office is not a big part of this process. For the development of the policies, this is done at the individual banks, and has nothing to do with the alliance. When the systems and policies are going to be implemented, this is done at the banks, and people from the main office travel around to the consultants to present the system and how it is going to be used, and the consultants can ask questions and seek support. The implementation is therefore a very interactive process.

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## **Abbreviations / Acronyms**

BM – Bedriftsmarked (Corporate market)

CEO – Chief Executive Officer

CFO – Chief Financial Officer

CobiT – Control Objectives for Information and related technology

COSO – Committee of Sponsoring Organizations of the Treadway Commissions

CRD – Capital Requirements Directive

CRM – Customer Relationship Management

CRO – Chief Risk Officer

EBA – European Banking Authority

EEA – European Economic Area

ERM – Enterprise Risk Management

EU – European Union

ICAAP – Internal Capital Adequacy and Assessment Process

IRB – Internal Rating-Based

LGD – Loss Given Default

PM – Privatmarked (Consumer market)

SNN – SpareBank 1 Nord-Norge

VaR – Value-at-Risk

# **1. Introduction**

## ***1.1 Background and motivation***

It is likely that the risk functions in the bank industry will have gone through fundamental changes by 2025 (Härle et al., 2015). Even though this industry has already gone through many changes the last decade, triggered by the global financial crisis, it does not seem to slow down over the next years. Therefore, it is important for banks to start preparing for this already, if not, they might be very overwhelmed when all the changes hit them. Härle et al. (2015) suggest six main trends as drivers for these large changes in an article presented by the consulting firm McKinsey & Company, and this is the company's predictions for the future of the bank industry.

The first trend that banks should be aware of is 'continued expansion of the breadth and depth of regulation'. Four drivers are suggested for this expansion in the scope regulations. First of all, both the public and government's tolerance for bank failures have been affected by the global financial crisis of 2008, and they are not willing to use the taxpayers' money to save banks. The new regulations that came after 2008 was expanding by tightening in on both the micro- and macro-focused regulations. Second, there have come stricter policies for illegal and unethical behavior, as a shift have been made towards financial crime. Thirdly, governments in different countries have started to focus on that both domestic and global organizations need to act in compliance with the countries regulations if they want to do business within their borders. Lastly, it is also expected the banking industry will have tighter regulations on how to behave towards customers. It is not expected that these changes in the regulations will happen at the same pace and scale in all countries, but Härle et al. (2015) believes that most countries will experience an expansion in regulations compared to what they have today.

Banks also need to take into consideration that the customer's expectations are currently changing quite a lot. Changes in customer expectations and technologies will likely cause large changes for banks and their profiles. By 2025, Härle et al. (2015) think the use of technology will be more widespread between all customers, both younger and older. This creates an increased need for innovation in technology for the financial industries, as customers will have higher expectations to the technological development. Technological development also makes it easier for customers to change their bank, so the banking industry need to put more focus on building customer relationship and loyalty.

A third trend is that technology and analytics will become more of a risk muscle for banks. The development of new technologies will not only create challenges related to the customers, it can also help banks by creating new risk-management techniques. These techniques are often used together with advanced analytics. Computers and data storage becomes faster and cheaper, which helps in making decision considering risk, and to integrate the risk process in the organization. Although the future innovations are unknown, Härle et al. (2015) points out three innovations that are already affecting risk management: Big data, machine learning and crowdsourcing.

There are new risk types are emerging within the bank industry, and some of them are nonfinancial. Even though there have been significant advancements in the financial risk management over the last 20 years, nonfinancial risk has not gotten that much focus. But over the last years, the industry has experienced an increase in fines, damages and legal cost related to risk, which have forced attention toward these nonfinancial types of risk. Härle et al. (2015) sees it as probable that this attention will increase over the next years, partly because of the new regulations mentioned earlier. There are also new critical risk types that have emerged, like e.g. contagion risk, model risk and cyberattacks.

The bank industry will need to make better risk decisions, which can be done through the elimination of biases. For banks, a significant risk is that of making wrong decisions based on unrecognized biases. An important part of understanding this risk is to understand how real humans make economic decisions, as this often include both conscious and unconscious biases, and decisions are also often affected by overconfidence. A lot of work have therefor been put into developing techniques that overcomes such biases. Härle et al. (2015) presents two risk functions that can be applied: bias recognition and elimination techniques.

Lastly, we see a trend for an increased need for strong cost savings for banks. The bank industry has experience a decline in margins for both geographies and product categories, a cost reduction have been important to compensate for this. The decline in margin is however not expected to slow down, rather the opposite, caused by e.g. the tighter regulations (Härle et al., 2015). This creates a pressure on banks to rethink their operational costs, and change their costs systems to be able to reduce the cost and still produce value.

These six trends are indicators as to what changes might be in the future for the bank industry, but there is also a lot of uncertainty. The markets are dynamic, and changes are happening constantly, which affects the risk significantly. This article sparked my interest for

the bank industry and makes it a very interesting industry to study at this point, as these changes will have significant effects on several aspects of banking. Risk management systems are one of those aspects that are affected that I find the most interesting, and I have therefore chosen to focus on this.

## ***1.2 Research question***

My motivation for choosing the topic of risk management is to gain a better understanding of how risk managements systems have changed over the last years, including, but not limited to, enterprise risk management. As both risk management and enterprise risk management are large fields, so I have therefore narrowed it down to the development and implementation of the risk management systems. My main research question is therefore:

*“How are the risk management systems developed and implemented in SpareBank 1 Nord-Norge?”*

To be able to answer this research question, I will answer these sub questions:

- i. What is a risk management system and what is known about it in banks?
- ii. How are the risk management systems developed in SpareBank 1 Nord-Norge?
- iii. How are the risk management systems implemented in SpareBank 1 Nord-Norge?

Enterprise risk management is being used more and more in the financial industry, like banks, but there are different practices presenting themselves. There are different risk management types that together form the risk management mix in the organization (Mikes, 2009). There have been several studies on enterprise risk management in larger banks, like e.g. Mikes (2009), and Wu and Olson (2010), but the smaller banks have not gotten that much attention in this field. It is therefore interesting to conduct this study of a smaller, regional bank, and see how risk management is implemented and used here, and if there are different findings from those earlier studies in larger banks.

## 2. SpareBank 1 Nord-Norge

I am focusing on only one bank for the data collection in my thesis, and is therefore doing a single case study. The case I am focusing on is SpareBank 1 Nord-Norge, which is the northern Norway part of the collaborative group SpareBank 1 Gruppen AS. This group is the second largest finance group in Norway. There is a total of 16 Norwegian banks in the collaborative group that was founded in 1996, all acting as independent banks, but with the brand name SpareBank 1 (<https://www.sparebank1.no/nb/bank/privat.html>, downloaded 21.01.17; SpareBank 1 Nord-Norge, 2017).

SpareBank 1 Nord-Norge (hereafter called SNN) is a regional bank, only focusing on Northern-Norway, and has grown with the local development so that it could become the bank it is today. Some of the industries that SNN is focusing on in northern-Norway is aquaculture, fishing, technology and tourism. This does not mean that SNN is only focusing on corporate customers, as they have around 270,000 private customers and 33,000 corporate customers. SNN is offering the services payment, savings, loans and insurance. With 38 offices spread within Nordland, Troms, Finnmark and Svalbard in Northern-Norway, in addition to online and mobile services, SNN is very accessible for their customers. SpareBank 1 Nord-Norge is organized after regions, as can be seen in the organizational chart below (figure 2.1). It is a very safe bank at the moment as it has been rated A1 by Moody's and A by Fitch's ratings. (<https://www.sparebank1.no/en/nord-norge/about-us/about-us.html>, downloaded 21.01.17; SpareBank 1 Nord-Norge, 2017)

### ORGANISATIONAL CHART

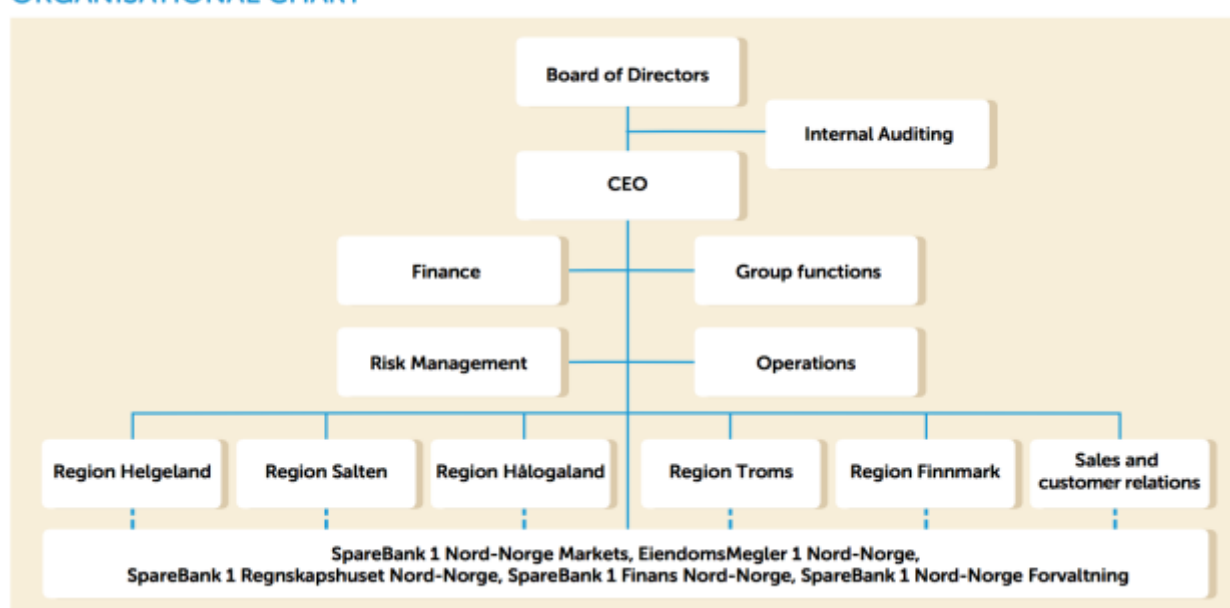


Figure 2.1 SpareBank 1's organizational chart

SNN went through some major changes last year. In the beginning of the year they sold all their assets in the Russian market to focus back on the Northern-Norway market, which is a part of their strategy. Their vision as a part of this strategy is ‘**For Northern-Norway**’. They also put down the smallest branches of the bank, but no employees lost their jobs because of this. (SpareBank 1 Nord-Norge, 2017)

## 2.1 Risk management

SNN prioritizes to have a risk and capital management that supports the organization’s strategies, goals and development, and strive to assure financial stability. The framework for the risk management is based on elements like strategy, organizing and organizational culture, risk and capital management, reporting, follow-up, emergency response plans, and compliance. Overall, SNN has a goal that the total risk level should be moderate and within the set limits of the strategy. Every quarter the Board presents a summary of the view on total risk for the organization. SNN has a structure to their risk management where they have both internal, external, and independent control organs, as can be seen in figure 2.2 below, and they strive to have very high quality in all of their reporting. (SpareBank 1 Nord-Norge, 2017)

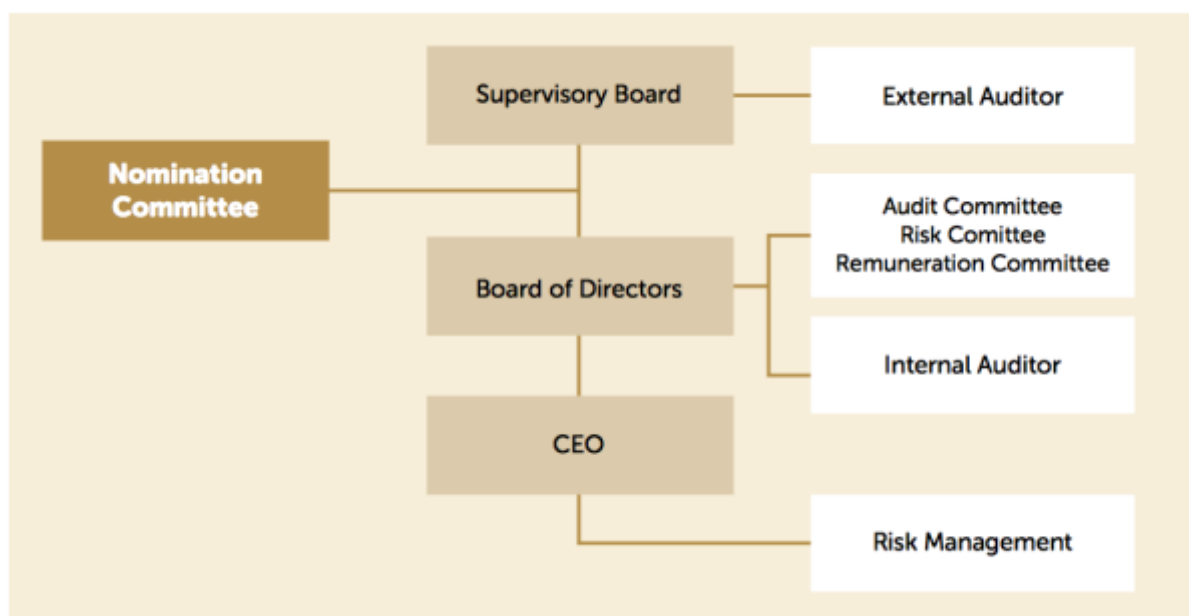


Figure 2.2: SpareBank 1's risk management structure

When SNN is assessing their customers, they classify them in one of six categories: very low risk, low risk, medium risk, high risk, very high risk, or defaulted. For the private

customers, most of them are within the very low or low risk categories. For the corporate market however, most of the customers are within the low or medium risk categories. The different types of risks that SNN encounter is organized within risk areas, and can be seen in figure 2.3 below. They are both calculating the risk within each of these areas, comparing that to the set risk limit for that area, and calculating the total risk based on these areas. (SpareBank 1 Nord-Norge, 2017)



Figure 2.3 SpareBank 1's risk areas



### **3. Frame of reference and analytical model**

In this chapter, I am going to discuss relevant theories based on already existing literature within the field of risk management and the bank industry. I am now first going to present the frame of reference, and then use this to present the analytical model a bit later in this chapter.

According to Nocco and Stulz (2006) a lot of changes has happened within the field of risk management and the role that it has in organizations the past decades. Thirty years ago, the focus for the risk manager was to purchase insurance and hedging of interest rates and exchange exposures. Since then, risk management has grown to include a much wider range of risk, like operational risk, reputational risk and strategic risk. Mikes (2009) also adds that it has become more common that risk management is a part of the strategic decisions in organizations, especially after the latest financial crisis. Where earlier the risk manager position was a lower-level job, this increased focus has led to many organizations employing a senior executive in the position of chief risk officer (CRO) (Nocco and Stulz, 2006). According to Dickinson (2001), the role of the CRO is to coordinate the management and financing of risk across the organization, so the CRO has to work closely with the chief financial officer (CFO). In financial institutions, the CRO often has an additional responsibility of keeping a close eye on the government authority in charge of regulations.

There are two main ways to manage risk for an organization (Nocco and Stulz, 2006):

1. Only look at one risk at the time, done at a very decentralized basis.
2. To look at all risk together within a framework. This is often called enterprise risk management (ERM).

Before taking a closer look at risk management theory, I am going to look at different factors that are affecting the risk and the risk management systems in an organization, presented through contingency theory.

#### ***3.1 Contingency theory***

According to Otley (1980), contingency theory is a concept that was first known in the mid-1970's. It builds on the prerequisite that there is no universal system that will be the best fit for all organizations in all circumstances. Past research done on contingency theory has mainly focused on the aspects of budgeting, although studies that are more recent focus on more

emerging aspects of management control systems (Chenhall, 2003). Instead of a universal system, organizations need to look at different factors in their operational context and how these are affecting them to determine the best system for their use. These factors, also called contingencies, include technology, organization structure, external environment, size, strategy and national culture (Chenhall, 2003; Otley, 1980).

Technology is often seen as the most simple and longest established factor, although it can have different meanings within different organizations (Chenhall, 2003; Otley, 1980). It can e.g. refer to the technology used in work processes and is affected by the complexity, uncertainty and interdependence of the task (Chenhall, 2003). Different types of production technology, e.g. small batch vs large batch, and the complexity of the task will affect the internal systems in the organization, especially the accounting systems.

Otley (1980) also suggests that the structure of the organization will affect the organization, especially related to how budgetary information is used. The structure of the organization tells you the roles and tasks of different members and groups, and helps to make sure that all activities are carried out correctly (Chenhall, 2003). Decision-making processes and the choice between e.g. budget-constrained and profit-conscious systems is also a part of the structure, and will affect the performance and efficiency. This should therefore be based on considerations about the field of work and degree of interdependence.

Environment was also presented by Otley (1980) as an important factor in explaining why different systems work best for different organizations, and according to Chenhall (2003), this is the foundation of contingency theory. External environmental factors include how intense the competition is, what type of competition it is, uncertainty, turbulence, hostility, diversity, and complexity, and it can affect different departments within an organization differently (Chenhall, 2003; Otley, 1980).

Chenhall (2003) presents size as an important factor, and argues that organizations that are growing are improving their efficiency and create more opportunities than those that are not. Larger organizations can also control their operational environment in a higher degree, and can therefore reduce the uncertainty. Increasing size can also bring negative effects, as the increased amount of information and complexity may require a higher degree of control, rules and regulations within the organization. The size of the organization will therefore affect what kind of system is the best fit.

Strategy is, according to Chenhall (2003), a bit different from the other factors presented. It is not so much a part of the context as a tool the organization can use to affect the context, especially environment, technology and structure and control. This assumption gives the managers back some power in that they can control some of their operational context. Different strategies will therefore work better with different management control systems.

National culture, as presented by Chenhall (2003), is an extension to the factors in the original contingency theory. Different countries have different cultures, and people from these cultures will respond differently to the same management control system. A system that works in one country might not work that well in another. As many organizations have become multi-national, they need to consider the effect of the national culture of the country when designing the management control system they are going to use.

### **3.2 Enterprise Risk Management**

Enterprise risk management emerged among organizations in the mid-1990's as a top-down approach to how you could manage the total risk that faces you (Dickinson, 2001). COSO (2004, in Mikes 2009:20) defined enterprise risk management as

*“... a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives”.*

This presents ERM as a strategic management control system (Mikes, 2009).

Mikes (2009:19) also presents enterprise risk management as

*“the risk management of everything”,*

and suggests that this model is a universal model that all new banks should adopt to, especially because of the good fit with banking regulations and corporate governance. This has led to many banks adopting ERM, and especially the mission and principles of this model. Nocco and Stulz (2006) also argues that organizations that are able to create an effective ERM gain a competitive advantage over those that look at one risk at the time. The reason for this is that these organizations have a consistent and systematic measurement of risk that produces the information needed to optimize the tradeoff between the risk and the return within the

organization. This will help the organization in following its strategic plan. A good ERM will also create value at both a macro and micro level. At the macro level, it supports the senior management in managing the tradeoff between risk and return for the entire organization, which helps in maintaining the access to capital markets on other resources needed to implement the strategy and business plan in the organization. At the micro level, the ERM helps both managers and employees at different levels and departments in the organization in evaluating the tradeoff between risk and return, and in owning the material risks. I am now going to take a closer look at these benefits.

### ***3.2.1 Macro benefits of ERM***

One very important reason for organizations to manage risk, according to Nocco and Stulz (2006), is to avoid the underinvestment problem. This means that the organization can reduce the probability of having a large cash loss compared to what was expected, as this can lead to less cash allocated to value-increasing investments. This does not mean that all risk should or can be avoided, all organization is exposed to some risk, like changing currencies, interest rates and commodity prices (Nocco and Stulz, 2006). When organizations make decisions on retaining or transferring risk, the principle of *comparative advantage in risk-bearing* can be a good guideline. If an organization is not able to forecast market variables, it does not have a comparative advantage in bearing the risk that is associated with these variables. For organization-specific business risks on the other hand, the organization will have a huge advantage as it knows more about these specific risks than any other organization. Using this comparative advantage guideline will remind organizations that they are in business to

*“... take strategic and business risk”* (Nocco and Stulz, 2006).

Once organizations realize the advantage of certain business risks, the risk management can help the organization in making the most out this advantage.

### ***3.2.2 Micro benefits of ERM***

If the total risk in an organization is increasing, Nocco and Stulz (2006) pointed out that this can lead to important projects being passed and disrupt the normal operations. The costs associated with the total risk therefore need to be accounted for when the tradeoff between risk and return is assessed for possible new investments. If the taking on of a new project will

increase the total risk in the organization, it needs to have a sufficiently large return to weight up for this risk and the cost associated with it. A challenge when implementing the ERM is to ensure that this tradeoff between risk and return is taken into consideration for decision-making on all levels of the organizations, and not just for the top management. To cope with this challenge, the evaluation of the risk-tradeoff need to be performed by the project planners for that specific project. This more decentralized approach makes the main focus for the CRO to provide the project planners with the information they need and incentives to take decision that are in accordance with the shareholders' interests.

### **3.2.3 The right amount of risk**

One of the larger questions regarding risk management is what the optimal amount of risk for an organization to bear is. Nocco and Stulz (2006:11) tells us that when the organization is reducing its risk, it can also reduce

*“the amount of expensive equity capital needed to support its operating risks”.*

Based on this we can see risk management as a substitute for equity capital. The role of the CRO and the top management then becomes to evaluate the tradeoff between implementing a more active risk management system and having a larger buffer of cash and equity in the organization. If the organization does not have a large buffer, a substantial drop in the cash flow can have large financial disadvantages. Many organizations therefore have a set level of cash flow that they want to maintain, and then build the risk management system around this set value to ensure that the organization does not go under that minimum (Nocco and Stulz, 2006). Although the risk management system is built around this goal, you can never be a hundred percent sure that the cash flow will not fall below this value, as unexpected events can occur. The ERM will therefore not eliminate the probability of financial disadvantages, but limit it to a level that the senior management thinks will maximize the value of the organization. By having large investments in treasury bills, an organization can minimize the probability of disadvantages, but this in the best interest of shareholders. Rather the management need to put their focus towards optimizing the risk portfolio of the organization.

If the organization takes on a new risky project or activity, the probability of financial disadvantages will increase together with the expected costs associated with the disadvantage. Nocco and Stulz (2006) suggest that a possible way to avoid these increased costs is to raise enough new capital to weight up for the added risk. Based on this, the best way of calculating

the cost of the increased risk from this project or activity, is to evaluate how much new capital that need to be raised to eliminate the effect on the probability of financial disadvantage. In theory, this might seem simple, but in practice organizations have many different risky projects at once, and the total risk is also affected by the correlation between these, which makes it much more complicated. Therefore, it is necessary to have enough information about the other projects in the organization in addition to how a new project will contribute to the risk before making a decision.

Nocco and Stulz (2006) point out that for organizations in the finance industry, like e.g. banks, there is a specific consideration that need to be included when evaluating the cost of financial disadvantages. Financial trouble in the market will have a larger impact on liabilities, like e.g. bank deposits and insurance contracts, for this industry, as it is an important source of value for organizations operating here. Since these liabilities are more sensitive than those in many other industries, financial organizations often set a lower target probability of financial disadvantages.

### ***3.3 Developing and implementing ERM***

Mikes (2009) suggests that for financial institutions like banks, ERM should be implemented as a part of the decision-making and management control. According to Nocco and Stulz (2006), a critical part of this implementation is that employees at different levels and departments in the organization all understands how this framework can create value. They also point out that the management need to understand that ERM is not just an academic exercise, rather it is a tool that is important for the execution of the organization's strategy. To get everyone in the organization to support the ERM, the management need to carefully design the performance evaluation and incentives related to it. This points to ERM being a top-down process, as suggested by Dickinson (2001), and policies and organizational structure is therefore important for a successful implementation. Those employees that work closely with risk need to provide this information to the top management, so that the management can provide policies on how to act on these risks.

Nocco and Stulz (2006), have identified several steps on how to implement ERM and make it work. The first step when an organization wants to use ERM is to identify all the risks it is exposed to. This can be done by identifying the different types of risk that is relevant for the organization and that will be measured. Mikes (2009) calls this risk silo management. For

the banking industry, this often involves to classify the risks it is exposed into one of the three categories market, credit, and operational (Nocco and Stulz, 2006). In this classification, operational risk becomes an all-surrounding category that involves everything that cannot be put into the market or credit risk categories. Even though this is the most common classifications, many organizations have in more recent years also started to include liquidity, reputational, and strategic risks (Nocco and Stulz, 2006). In addition, the classification of market, credit, and operational risks does not fit well for other organizations than banks, even within the financial industry, as these faces different types of risk.

After all the risks that the organization is exposed to is identified, Nocco and Stulz's (2006) next step is to find a consistent way of measuring how exposed it is to these risks. One approach to this that is commonly used is to quantify all the significant exposures for the organization. By using this approach, the organization secures that the same risk will have the same effect on performance evaluation and decision-making for all the different business units and activities within the organization. Activities with the same risk will then be allocated the same amount of capital, and you avoid tension building up between the employees. For this identification and measuring of risks to be useful for the whole organization, the information possessed by employees on different levels need to be continuously collected and made comparable in an analysis, so that the risk can be managed effectively. A large number of corporate disasters have been caused by organizations that have not thoroughly inventoried their risks, so this is an important, yet time-consuming, step.

Although Nocco and Stulz (2006) presents credit ratings as helpful in relation to the organization's risk appetite and measuring of how exposed it is to risk, they also point of some limitations that the management need to be aware of. Since credit ratings are based on accounting ratios and subjective judgement, these may not always be the most reliable estimates of the organization's risk level.

Looking back at the classification of risk in the three categories market, credit and operational risks, an organization will begin the measuring process by measuring the exposure to the risk categories individually (Nocco and Stulz, 2006). Value-at-risk (VaR) has been often been suggested as one way of measuring this (Mikes, 2009; Nocco and Stulz, 2006; Wu and Olson, 2010). According to Mikes (2009:23), VaR is

*"... a statistical measure of unanticipated loss, derived from the loss distributions of different risk types that institutions track ...".*

Wu and Olson (2010) also presents scorecards (e.g. the balanced scorecard) as a tool to measuring performance and risk, partly because it focuses on strategic goals and measurement, although it is not as commonly used within ERM.

Starting the measuring process, each of the three categories will first have its own VaR measurement, and then these are used to find the organization-wide VaR. The organization-wide VaR will be affected by the correlation between the three categories of risks, which tells us the probability of having high exposure of risk in all categories at the same time. Normally this probability will be low, which mean that the three risk categories are diversified, so the organization-wide VaR will be lower than the sum of the three VaRs. (Nocco and Stulz, 2006)

According to Nocco and Stulz (2006), the three types of risk have very different distributions, as can be seen in figure 3.1 below. Market risk have a normal, symmetric distribution, while both credit and operational risk have distributions that are more asymmetric. The reasons for these differences can be that market risk has a behavior that is similar to that of returns on a portfolio of securities. Credit risk on the other hand is more uncertain, either the creditor pays back everything that it owes, or it does not pay back at all, which can lead to large losses. With operational risk, there is often smaller losses, but number of total losses is larger. Even though smaller losses are more normal, there is also a chance of larger operational losses, which create the long tail we see in the figure.

Often the relation between the amount of equity capital the organization have set to reach their goal rating and the amount required by regulator is very small. By using ERM, the organization seeks to maximize the shareholder's value, so the amount will largely exceed the regulatory requirements. The requirements will therefore not affect the decision-making in the organizations, as these are already fulfilled.



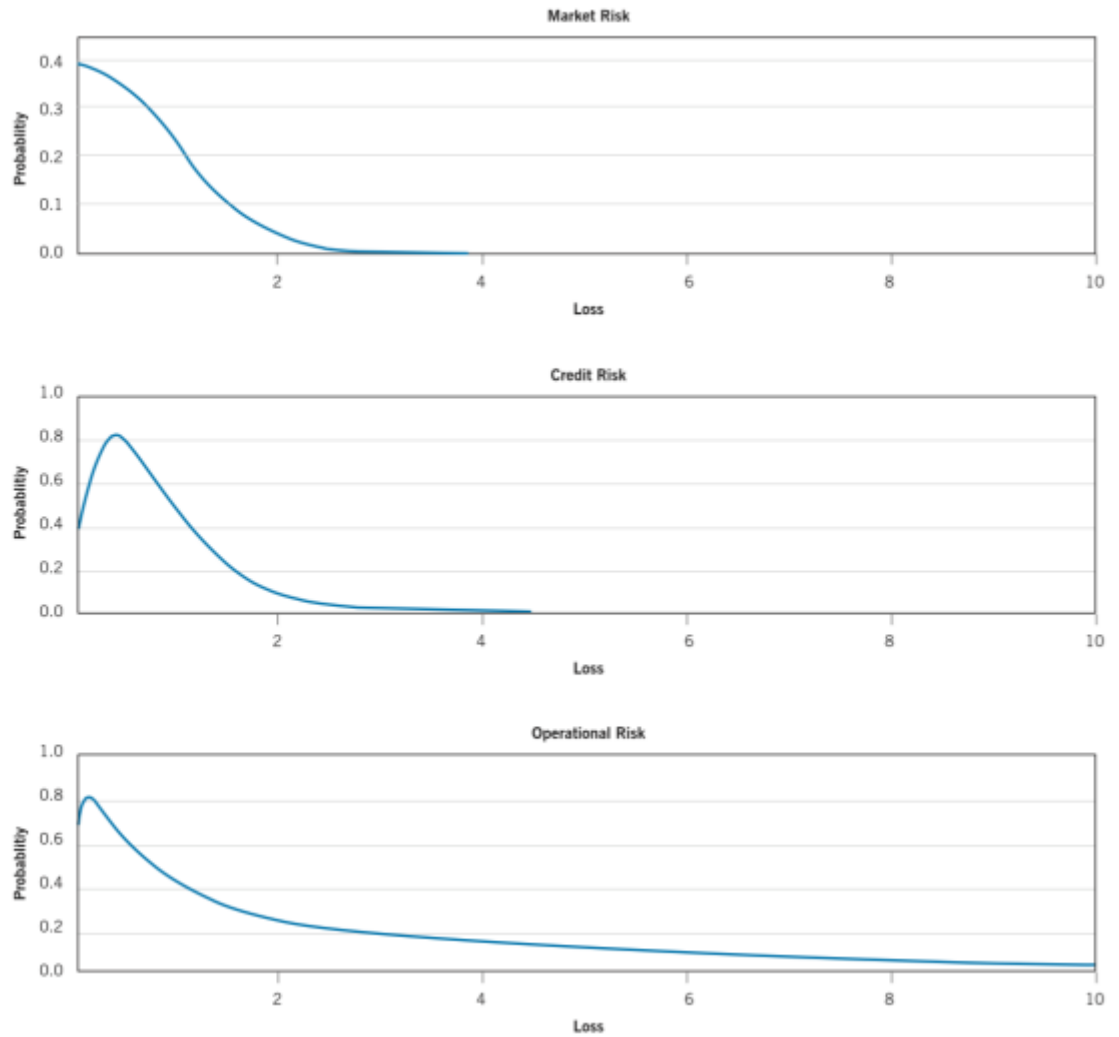


Figure 3.1: Typical market, credit and operational risk distributions (Nocco and Stulz, 2006:17)

### 3.3.1 Is it successful?

So, how can an organization know that their ERM is successfully implemented? Nocco and Stulz (2006) points out that a successful and effective ERM should contribute to a better estimate for the expected value, and increase the understanding of the unexpected losses, but it still does not eliminate all the risk. Therefore, substantial negative outcomes are still a possibility, and the ERM should not be judged on that. The ERM is there to limit the probability of such outcomes to the level set by the top management.

Nocco and Stulz (2006) further looks at how to evaluate how well the CRO is doing. This can be done by determining if the risk is well understood and managed within the organization. If this is the case, the organization will be in a position where it can demand

resources to invest in new projects, as the investors trust its decision. If the investors see that the risk is understood and managed in a good way, they can also distinguish between negative outcomes as a result of bad luck and negative outcomes as a result of bad management.

### ***3.4 Laws and regulations***

In addition to the Norwegian law and regulations, Norwegian banks have to fulfill some requirements and follow frameworks from both the Financial Supervisory Authority of Norway, the European Banking Authority and international committees. Two of the requirements that I will shortly present is BASEL III and Pillar 3.

#### ***3.4.1 BASEL III***

Basel III is a global framework created by the Basel committee, and seeks to make the banking industry more resilient to financial and economic stress (Basel Committee on Banking Supervision, 2010). It builds on the previous Basel I and Basel II frameworks created by the same committee. By making this framework, they hope to reduce the risk of distress in the banking industry affecting other industries as well, as we saw in the financial crisis of 2008, and it is also building on lessons from this crisis. The main goals of this framework are to have better risk management and governance in the banks, and to make them more transparent, which is done through a strengthening of the regulatory capital framework, raising the quality and quantity. A limitation on risk-based capital measures is also presented in the framework, which intend to reduce model risk and errors. The Basel Committee on Banking Supervision (2010) argues that having a more stable bank industry can lead to more sustainable economic growth, as it offers services to both consumers and different sizes companies, as well as the government.

The EBA decided in September 2012 that the requirements in Basel III will be incorporated in the EU's capital requirement regulations. As Norway is a part of the EEA, the Norwegian banks will also have to follow this regulation (<https://www.finanstilsynet.no/nyhetsarkiv/>, 2012). In March 2013, the EU presented their own framework called CRD IV which presents regulations on capital requirements, and this framework builds on Basel III (<https://www.finanstilsynet.no/nyhetsarkiv/>, 2013).

### **3.4.2 *Pilar 3***

Pilar 3 was a recommendation from the Basel Committee in the Basel III framework, but the Financial Supervisory Authority of Norway has made it a requirement for Norwegian banks. It presents a requirement for the banks to make information about capital, risk and the relationship between them public. The purpose of Pilar 3 is to increase the discipline in the market and to make it easier to compare different banks to each other. For different stakeholders, this information will help them evaluating the banks when it comes to risk profile, capitalization, and how they manage and control risk. This information should at least be published once a year with the annual reports, but the banks can choose to publish it more frequently (<https://www.finanstilsynet.no/tema/kapitaldekning/>, 2017).

### **3.5 *Analytical model***

Risk management is a field that have experiences a lot of changes the past decades, and today it is a much wider field than just thirty years ago. There has also been a widening in the number of different types of risk that an organization must consider. How organizations are affected by these different risks, and what type of model or framework is the best fit for coping with these risks is affected by several factors in the organizational context. This is factors like technology, organizational structure, external environment, size, strategy and national culture, and all of these factors could have contributed to the systems you find in an organization today.

Two main ways of working with risk has appeared. The first one is to look at each risk and situation individually, and only evaluate them based on their effect alone. The second one is to look at all the risks the organization is affected by together to find the best composition of different risk. This is often done through the framework of enterprise risk management (ERM), which emerged in the mid-1990's as a strategic management control system. ERM has often been recommended for banks and the financial industry, and it is therefore the focus of this analytical model.

As said, ERM is presented as a good fit for banks and financial institutions, and has therefore been adopted by many banks. This framework says that risk is not something that should be avoided, instead you need to be able to manage the risk and see the possible effects of the different types of risk for the organization. Banks therefore need to consider the tradeoff between risk and return when evaluating new projects. Finding the optimal amount of risk is one of the largest and most difficult considerations for a bank to decide on. When deciding on

this, you need to consider the tradeoff between implementing a more active risk management system and having a large buffer of cash and equity in the organization. Many organizations have a set level of cash flow that they do not want to fall under as the baseline for this tradeoff. Banks also have to consider the fact that they are in the center of the financial industry, so financial trouble within any market or industry can affect them.

ERM is suggested to be implemented as a part of both the decision-making and management control, and should be used at all levels in the organization as a top-down process. In this process, it is important that all employees at different levels understand the model and the values it creates. By doing this, the organization can gain a competitive advantage. These advantages can be at both a macro and micro level. At the macro level, ERM helps with the evaluation of tradeoff between risk and return for the entire organization, avoiding an underinvestment problem, making decisions on whether to retain or transfer risk. At the micro level, ERM helps with the evaluation of tradeoff between risk and return on different levels and departments when assessing new projects, and brings a more decentralized approach to risk management.

There are several steps to follow when developing and implementing the ERM framework. First, the organization needs to identify all the different types of risk it is exposed to. These risks are then classified into different categories like market, credit and operational risk. When this is done, the organization also need to find a way of measuring how exposed it is to the different risk types. Credit ratings can be helpful in this process, but is not always recommended. Value-at-risk (VaR) is another way of measuring the exposure, where you start by looking at the risks individually. If using VaR, all the risk types will then first have their own VaR, which is then used to find the organization-wide VaR. The organization-wide VaR will be affected by the correlation between the individual VaRs, and is therefore often lower than the sum of theses. Even though this work can be very time consuming, it is crucial for the organization that this is done correctly.

It can be difficult to know if the implementation of ERM has been successful. Some indicators can be that the organization has a better estimate for the expected value, a better understanding of the unexpected losses, and a good management of the risk. A successful ERM does however not eliminate risk and unexpected losses, and should therefore not be judged by the appearance of this.

There are also different standards and regulations that banks need to consider. One of these is Basel III, which is a global framework created by the Basel committee, and seeks to make the banking industry more resilient to financial and economic stress. Another is Pillar 3, which was a recommendation from the Basel Committee in the Basel III framework that the Financial Supervisory Authority of Norway made a requirement for Norwegian banks. It presents a requirement for the banks to make information about capital, risk and the relationship between them public.

The analytical model, as presented here, is a summary of the frame of reference, and presents my assumptions and expectations as to what systems they use in banks, and how the process of risk management is performed. My assumptions are that the ERM framework is used in banks, as it is presented as a good fit for organizations within the financial industry. Further it is implemented in the whole organization at all levels, there is a good information flow both up and down in the organization, and the organization's strategy is a part of this process. Several of the steps on how to develop and implement ERM is to be followed, especially how to identify and measure the exposure to the different risk types. This can help all the employees in evaluating possible customers and projects, see how these will affect the total risk in the company, and make decisions about them. In addition, standards and regulations like Basel III and Pillar 3 will be taken into consideration when developing and implementing the risk management systems.

## **4. Methodology**

Looking back at the introduction chapter, I presented 3 sub questions to my research question. Those were:

- i. What is a risk management system and what is known about it in banks?
- ii. How are the risk management systems developed in SpareBank 1 Nord-Norge?
- iii. How are the risk management systems implemented in SpareBank 1 Nord-Norge?

The first question is theoretical, and will be answered through secondary data such as published academic papers on the topic, mainly studies done on banks. This was done in chapter 3. The second and third question will be answered through primary data collection in the form of interviews with key employees at SpareBank 1 Nord-Norge, in addition to secondary data such as annual reports. I also want to clarify that I am not going to look at how this process is done in the whole bank, only in the risk department of SpareBank 1 Nord-Norge. Key employees are therefore referring to those working in the risk department office. How this is done is presented in this chapter, and the results from the collection of primary data is presented in the next chapter, with secondary data, as the annual reports, being used to add to and complement the findings in the interviews.

### ***4.1 Research design***

Easterby-Smith et al. (2012) tell us that the research design is about organizing research activity, including the collection of data, in the ways that are most likely to achieve the researcher's goals. Therefore, research design is based on the research components, which were used to search the answers to questions about the study.

I have chosen a qualitative research design, in the form of semi-standardized interviews. According to Easterby-Smith et al. (2012), this type of research includes significant components such as the researchers experience, and his or her knowledge and intuition. The advantage of qualitative interviews is that you can go more in depth, and in that way uncover more of the meanings, motives and understandings behind the actions of the interviewee. If something is unclear to your interview object, you are there to explain it to them, so you may get more representative answers than with quantitative methods.

According to Hopf (2004, p. 203-204), semi-standardized interviews mean that you have an interview guide with topics you need to cover, but the interviewer has more freedom when it comes to formulating the questions and the order of them throughout the interview. This way, you have the possibility to go more in depth on topics that seem interesting or important to the person you interview, or areas that you find out that they have significant knowledge about. This possibility was the main reason that I chose semi-standardized interviews as my research method.

Within the research design, I have also chosen to do a single-case study. This kind of case study can be relevant under five circumstances: the case is critical for your theory, the case is unusual in that it deviates from the theory, the case is common in that it represent everyday situations and its conditions, the case is revelatory in that you gain access to a previously inaccessible case or phenomenon, and the case is longitudinal in that you study the same case at different points in time (Yin, 2004). The way that a single-case study is relevant for me is that the case is unusual in that it deviates from the theory. This is because my case organization is of smaller size than those in earlier studies, and it operates in a different market. In earlier studies the organizations are operation within a whole country or several countries, while SNN only focuses on a region within a country, and it will be interesting to see if there are some differences based on this.

According to Yin (2014) there are two types of single-case study designs: holistic and embedded. A holistic design means that you study the whole organization or program and its nature. An embedded design means that you study subunits within an organization or a program. My study can be said to have an embedded single-case design as I only look at the risk department of SpareBank 1 Nord-Norge, which then become my subunit.

#### ***4.1.1 Developing the interview guide***

While developing the interview guide, my focus is to make a guide that cover the main areas that I want to include in the interviews, but still keep it open enough so that I can customize it to the different people that I am going to interview. As the interviewees have different responsibilities and roles in SNN, more focus is put on some topics than others during the different interviews. Because I presented both my study, asked about the possibility to record the interviews and told about anonymity during the e-mail exchange before the

interviews, that is not a part of the interview guide. The finished interview guide can be found in appendix 1.

The interview guide starts with a few general questions. I find these relevant as how long they have worked there will affect how much experience they have, and it gives an indicator as to what changes in risk management during the years they may have been a part of. Their main responsibilities or area they work with is included, as this will give an indicator to what they do on a daily basis. In addition, it is interesting to see if there are differences between responsibility area and the answers on some of the other questions in the interview.

Risk understanding is one of the areas where I find it interesting to see if the answers is differing between the interviewees. In addition, how they view risk will affect a lot of the work they do, and is therefore important to establish. I have also included a question about the framework being used here, as this can affect both the view of the risk, how they understand risk and risk management, and also the development, implementation and use of risk management systems.

The development, implementation and use of the risk management systems are the most important parts of the interview guide, as these are a large source to answering my research question. I seek to get an understanding as to how these processes are being performed, who is involved and if there are differences between departments and markets.

Ending the interview guide, I want to include a few questions about what the interviewees think about the future for risk management, how it will develop and change, both in the literature and the standards and regulations. I choose to include these as there have been a lot of changes, and there are a lot of different thoughts on how it will be in the future, and it is interesting to see what someone that is actually working with this thinks about it.

As all the interviewees are Norwegian, the interviews are being held in Norwegian and then translated by me for the transcribed interviews that can be found in the appendix. The same applies for the interview guide.

## ***4.2 Validity and reliability***

To judge the quality of a research design, tests for validity and reliability are often used. Validity is generally about how well the data collected represent the phenomenon you are studying, or how relevant it is for the phenomenon (Johannessen et al., 2011:73). Reliability is



a test of the accuracy of the research data, what kind of data is used and how it is collected and how it is processed (Johannessen et al., 2011:44). According to Yin (2014), there are three different test that can be used for testing the validity: construct validity, internal validity and external validity.

Construct validity means

*“identifying correct operational measures for the concept being studied”*. (Yin, 2014:46)

To do this, it is necessary to first define the concept that are going to be studied, and then find the correct way to measure this concept. The construct validity can be increased by having multiple sources and a good chain of evidence (Yin, 2014). The concept I am going to study is defined in the research question, and is the development and implementation of risk management systems. I am going to measure it by the results of the interviews with people working with this concept. By having multiple interviews about the same topic and recording the interviews, I hope to increase the construct validity of my study.

Internal validity is

*“seeking to establish a causal relationship, whereby certain conditions are believed to lead to other conditions, as distinguished from spurious relationships”*. (Yin, 2014:46)

This is mainly a concern when there is an exploratory study, which means that the study try to explain why one event lead to another (Yin, 2014). As I am not doing an exploratory study, I focus on finding out how a process is done and not a cause-and-effect relationship, this does not so much apply for my study.

External validity is

*“defining the domain to which a study’s findings can be generalized”*. (Yin, 2014:46)

This test if the results from the study are generalizable, or if they only apply for this singular study (Yin, 2014). For my study I am only studying one organization, so based on that, the result might not be generalizable. But I am studying ‘how’ this concept is developed and implemented in that organization, the concept being risk management system, which is something many organizations have to deal with. Based on that, the results can apply for other organizations as well.

Reliability is

*“demonstrating that the operations of a study – such as the data collection procedures – can be repeated with the same results”.* (Yin, 2014:46)

This means that another researcher should be able to repeat the study, and do it on the same case, and get the same results and conclusions as the first researcher. It is therefore important for the researcher to document what has been done (Yin, 2014). During my data collection, I was keeping notes of all the stages concerning the development of the interview guide, and the finished interview guide is attached to the thesis. I also kept notes of the process of contacting the interviewees. The choice of the case company was done based on that it was within the size and type of organization and wanted to study, while the choice of interviewees was based on access within the organization. I was both taking notes during all the interviews and recording them, and then transcribing them afterwards, so that the whole process would be documented. By doing this, I hope to have covered every step need for the reliability of my research to be tested and approved.

Overall, I think that my study can withstand the test for validity and reliability. External validity is the only test very I think there can be some problems, but this study was not meant to be generalized for all banks, it was meant as a study of how a Norwegian bank is working compared to the international banks in previous studies, and that is what I hope will come through.

#### **4.3 Choosing SpareBank 1 Nord-Norge**

My case organization is SpareBank 1 Nord-Norge. SNN is working on a regional basis and therefore becomes a smaller actor in the banking and risk industry. I find it interesting to see how they relate to risk management and if the size of the organization affects this. As most of the studies already done on risk management is on banks that are larger than SNN, my motivation for choosing this bank is to see if what studies done on larger and often international banks have found can to relate to how a smaller bank is working with the same topics and issues. Questions I have asked myself when making this choice is what similarities and discrepancies, if any, will there possibly between the results of these existing studies and my thesis, and is there any discrepancies in how they view risk.

Even though SNN is a part of a bigger collaborative group, they act as an independent bank, so the findings from this thesis can be interesting for both departments of larger banks, and other smaller banks like SNN. I aim to find out if this affects how they look at risk, how much risk they are willing to take, the quality of the risk management systems, and how much resources they put into this work. Through interviews with key employees in SNN's risk department, I hope to gain knowledge about this.

To gain access to key employees, I contacted SNN through e-mail and presented the study I wanted to do and myself, and in that way I got in touch with one of the leaders at the risk management department. He then presented people that it would be relevant for me to interview, and was the coordinator for the interviews. These people were all within the risk department, but at different levels and with different responsibilities and areas of expertise. SNN's risk department is located in Tromsø, and I therefore travelled there to be able to have the interviews in person. A summary of the interviewees, what their main responsibilities or tasks are, how many years of experience they have with working in a bank, and how many years of experience they have with working with risk management in SpareBank 1 Nord-Norge can be found in table 4.1 below.

I was originally going to have four interviews there the day that I travelled to Tromsø, but as one of interviewees were sick that day, three interviews were held in person and the last interview was done over the phone. I did not have any direct contact with the interviewees before the interviews, all contact was done through the leader I first got in touch with.

	Main responsibilities or tasks	Years of experience in banks	Years of experience with risk management
<b>Interviewee 1</b>	Credit risk, credit models and risk management within this.	Not mentioned, but long history of different functions within banks.	Over ten years.
<b>Interviewee 2</b>	Operational risk and system development within this.	Five and a half years.	Two and a half years.
<b>Interviewee 3</b>	Leader of risk management and IT.	34 years.	Ten years.
<b>Interviewee 4 (phone interview)</b>	Credit quality on an overall level and follow-up of this towards the bank chiefs and consultants.	14 years.	Nine years.

Table 4.1 Summary of the interviewees

#### ***4.4 Conducting the interviews***

I travelled to Tromsø to be able to conduct the interviews face to face. The interviews were held at a meeting room in their office where we could be free for interference. I experienced many benefits from having the interviews face-to-face, as I could see their facial expressions and it was easier to notice which topics they had more knowledge about and was most interested in talking about. Because of this interaction, the interview guide was not always fully followed, and instead I followed the natural path of the interview. In addition, some of the interviewees had prepared a presentation or brought some slides to show me, so then the interview focused around that first. During to phone interview, I found this part a bit more difficult. Even though all the interviews were recorded (with consent), I was taking notes during them to keep an overview over the topics we had talked about, be able to ask follow-up questions, and it helped me to see the connections when I was transcribing the interviews and it will also help me analyzing them.

As all the interviewees were to be kept anonymous, they are just called interviewee 1, interviewee 2, interviewee 3 and interviewee 4 in the transcribed interviews, which have been shortened to I1, I2, I3 and I4, and that is how I refer to them in the empirical data and analysis chapter. When I am speaking in the interviews, it can be seen in the transcribed interviews as M, which refers to 'me'. All the transcribed interviews can be found in Appendix 2.

#### ***4.5 Processing the data***

When all the interviews were conducted, I started the work of processing them. As I had recorded all the interviews, I started with listening to the interviews and writing down, in Norwegian, what was said word by word in all of them. After I was done with this, I started translating what I had written down to English, and this is what can be found in the appendix.

The transcribed interviews were then used for the empirical chapter and the following analysis, which can be found in the two next chapters. I divided it into different topics, and then looked at what was said about that in the different interviews. I especially looked for if the different interviewees agreed on the different topics, or if they expressed different opinions during the interviews. Not all topics were covered or talked that much about in all the interviews, and therefore not all interviewees will be represented within all topics in the analysis.

## 5. Empirical data

I am now going to present my empirical findings on how the process of developing and implementing risk management systems is actually done in SpareBank 1 Nord-Norge in accordance with my analytical model presented chapter 3. This will be done through different topics that was discussed during the interviews. As I have only studied one department in one bank, the results of these empirical findings cannot be generalized, but it may help in gaining an understanding of how these processes is done in these kinds of banks.

### 5.1 View on risk

As several of the interviewees expressed, risk is a big part of the daily operations of banks, and I1 said that

*“...the whole concept bank consists of charging to take risk.”,*

so being in the bank industry, it is not possible to avoid risk. The dangerous part comes if someone does not understand a risk or someone does not have a total overview over it, because then it is difficult to know how it can affect the organization. I4 expressed it in this way:

*“To say it like this, as long as we know the risk and know how to handle it, it is okay with risk. But don’t misunderstand in the way that I am not searching for risk. But risk that we understand and can handle, that is in a way the short version of bank”.*

I2 also expressed, related to credit risk, that

*“... credit loss is in a way what we a live by, we give loans and we know that not everyone is going to pay back, that is a bank is always going to have losses, if not you have some very unlikely luck. So it is a part of the business. In my role that is not a weakness or a problem, it is just a part of the daily operations”.*

As risk is so much a part of a banks daily operations, it can be a problem if the organization is not able to take advantage of the opportunities and risk that it faces. I3 said that, when asking new employees about what the largest risk in a bank is,

*“Most people say that it is credit, it is liquidity, it is making money, but the largest risk might be that you are not able to take care of the market opportunities every day. Because if we are not able to have a healthy growth we will die, then we will not be able to earn equity, so to be in the market and have a healthy growth all the time, that is*

*extremely important related to risk management. It can be possibilities and also it is a threat that you need to have control over”.*

In a way, it can be said that it is risk in almost every part of a banks task. Banks take risk in lending money, as expressed by I3:

*“The moment I lend some money to someone I take a risk, and that way risk management becomes very important in finance”.*

Banks also often have a large capital base because people are saving their money or the money is invested in them, and it is a risk itself to take care of such large amounts of money, but also the owners expect to get a return on their money. Therefore, it becomes very important for banks to allocate that money correctly.

There is also a difference in how private and corporate customers and their risk is viewed, as I1 brought to my attention. Corporate customers are those that bring the largest risk into the bank, and that brings the largest losses for the financial industry in general. Private customers are traditionally not bringing as much risk, but recent development in the debt structure in that market can cause larger risk, so the bank is watching the market and customers a bit more closely than what they have previously done. The annual report for 2016 confirms this, as the loss on loans was 194 millions NOK for corporate customers and 19 millions NOK for private customers (SpareBank 1 Nord-Norge, 2017).

## **5.2 Framework used**

When it comes to if the bank is using any special frameworks, the interviewees had different answers. I1, that works within the area of credit, said that they use

*“Our whole credit portfolio, we are sitting on quite a lot of data and overview of the customers, so we calculate the risk through a scoring model which calculate key figures on the customers, and a statistical model that calculate what we call PD or the default probability which give the customers a risk placement so we are watching the portfolio and risk classes and have a frame for how much risk we can take ...”.*

To follow it up, I4, when it comes to framework used for evaluating customers, answered that

*“Yes, we have our policy that we are using, that is leading for, you can say that it starts with the strategy and credit strategy and from there we get the policy. That is the overall, but then we have analysis and the tools and mostly the craft that the consultant use that I am part of helping them with and find solutions for if this is something they can use”.*

To the direct question about if frameworks like enterprise risk management and COSO is being used, I1 answered that

*“Yes, we’re at least using COSO”.*

From the annual report from 2016 I could see that the COSO framework is used for the internal control in the organization, and SNN is following the five levels control environment, risk assessment, control activities, information and communication, and monitoring. For the area of IT, the CobiT framework is used as a foundation for the internal control and risk management.

I3 also talked about what laid as a foundation for decisions or developments around the risk systems in the bank, and expressed that

*“... we have made a document structure that is at the top, the risk management statement, which say what we put as guidelines for the different risk areas. It starts there, with what kind of market we are in, we are in Northern-Norway, what are the opportunities we have and how can we exploit these opportunities and what kind of risk are we willing to take for these opportunities. You can say that risk management is about what kind of volatility are you willing to take into your result”.*

### **5.3 Development of risk management systems**

For the credit area, as presented by I1, it is mostly very traditional products that have clear regulations and frameworks on how they should be treated, and the development of a complex system is therefore not needed for these kind of customers and decisions.

When it comes to if they are developing on or several systems, I2 said that

*“... we don’t have one system we can do everything in, that is a bit difficult, there are no systems like that, and it also is a bit difficult to make it. Then you will use enormous resources on making such a system that can collect data from the market and all the different types of risk within the corporation or the bank”.*



Instead of using one such big system, they are developed several systems that can be used together for an overall risk assessment.

The bank work with both corporate and private customers, which requires quite different models. I1 told me that for corporate customers, the official accounting reports and behavioral data is used, so those models need to consider that kind of input data. For private customers on the other hand, only tax numbers are used, and it is a much simpler process, so those models will be simpler and require a different kind of input data.

When the systems that will be used by the consultants for corporate customers are made, there are some set key figures that need to be considered in the evaluation that are a part of the systems. That is key figures like

*“... liquidity numbers, equity percent and financial strength numbers. And also on for example commercial real estate for rent we have a special model that try to look at the vulnerability in loss of renting income and things like that.”,*

as expressed by I1.

Working with risk management, no matter if it is the development, implementation or use of it and its systems, I3 pointed out that it is very important to think of the strategy and have strategic inputs. In doing this, the employees have to look to look at the bigger picture with the business model and what it is the organization is actually working with. This is not the way it has always been, and I3 said that

*“The way we are working we have started using a concept that is corporate governance which is what we are working based on. It is more of a total package related to that one side that is what we have here [on the presentation on the screen], in the bottom we have our vision for Northern-Norway that is very strong, we say something about our DNA and who we should be as an organization, how should the customers see us, the market see us and then we have made five clear strategic goals in the bank. And then we have made the strategy very simple, but that is on the one side it is very simple, but it is also very powerful because you can relate something to the five strategic goals at all times. And also we of course have a set with values at the bottom”.*

### 5.3.1 Credit risk systems

Most of the systems that are used in SNN are not developed within this bank alone. Instead they are a part of the SpareBank 1 alliance, where several SpareBank 1 banks come together in a competence center where data from all the different banks are used to make the overall systems. This process often starts with one bank coming up with an idea or they see a weakness in the system that needs to be worked on, and then all the banks come together in the alliance to find a solution. Some people in the offices participate in that they come with suggestions to improvements or express what they want from a new system, but it is mostly system developers that work on the technical development of the data systems and models. This alliance gives a wider environment and more data which helps find the best solutions for the systems. It is first when the development is finished that the systems and models are taken back to the individual banks and they are taking a larger part, which I will come back to in paragraph 5.4 about implementation.

During the development, the systems are sent out to some user groups who test the new systems, and see how they work in practice, and come with feedback to the developers. The developers then work on changes based on this, and send it back out for testing again. At some point, the managers just have to say that the system is good enough, and that is when the system moves from development to implementation in the whole organization.

Even though the consultants are not a part of this development process directly, those are the ones that will be using a lot of these systems, and they are also the ones that work the closest with the customers and see the needs and deficiencies in the existing models. Their input will therefore always be important when developing new systems or making changes to already existing systems.

However, even though the bank is always working on having the best, most updated, and customized systems and models, the bank can never get a model that ensures that it will not have losses. This was stated by I1 as

*“...you never get a 100% ideal model because the key figures you have is always a bit past related and you can have some economic cycles where an industry totally stops or something like that”.*

Therefore, there has to be room for some losses in these models without it threatening the bank's existence. I3, when talking about a risk model he had shown me, said that

*“And then if you go all the way to the left it is what a call the normal cost of losses, we have some losses, our business idea is to earn money on taking risk”,*

which affirms that the models have made room for some losses, and that it is seen as something normal for banks.

### **5.3.2 Operational risk systems**

The development process that is presented so far is related to credit risk, but I2 also talked about the systems used when working with operational risk. That system is not so much based on key figures to be used when evaluating customers. Instead this is a system that are used to assess the operational risk, look at instances where there have been made operational mistakes, and for the follow-up work that happens after such instances. I2 expressed when talking about this system that

*“... the main thing we manage from that we should have quality in everything we do”*

This means that it is also a kind of a quality system. The development of that system is therefore very different to those other systems mentioned earlier, and it did not start within the alliance. I2 explained that

*“... this system is developed by a company that started here in Tromsø, a small company that wanted to make a system to attend to these kind of problems, so a couple of years ago SpareBank 1 Nord-Norge entered a collaboration where we together with them have developed this, so that they get to develop a software that they in the long term can sell to other companies, but at the same time we get to develop what we need for this kind of risk management”.*

Even though the other SpareBank 1 banks was not a part of the original development, they are now a part of it and have started using the system and helps with the further development

### **5.3.3 Guidelines and policies**

When it comes to risk management, the systems that the employees are going to use is not the only thing that needs to be developed. It is also important to develop good guidelines and routines so that the employees know what they should do and how to act. The development of policies is also important within risk management, and I4 explained that this is done with the

credit departments of the different local banks within SpareBank 1 Nord-Norge, and not within the alliance. Credit chiefs within the different banks in the alliance might have meetings and borrow ideas from each other, but at the end of the day it is individual policies. It is different policies that is developed for the private and corporate market. And I4 explained that

*“For the private market the policy is more technical, more like click here, click there in the systems. ... While at the corporate market it is in a higher degree made towards industries and individual customers, so it is a more comprehensive manual and policies for the corporate market”.*

#### **5.4 Implementation of risk management systems**

The people I talked with work on the main office and does not have any direct contact with the customers. In the implementation phase, their role, as presented by the interviewees, is therefore to present the models and systems to the consultants, and give them good decision and support systems that the consultants can use when they are working directly with the customers, both corporate and private ones. It is still possible to seek support from the alliance in this process, but the different banks are themselves responsible for starting to use these new systems.

Out of the people I talked to, I4 is the one working furthest out in the line and closest with the consultants, and work closely with the implementation on the credit side in region Troms. This is mostly implementation of policies and management documents, and talking to the consultant and explaining the most important changes, and taking questions and talking about how to use these new policies. In addition to this, starting this year, they sent out a questionnaire to everyone working with credit about the policy where it was possible to come with feedback and suggest areas that could be improved. These suggestions were taken into consideration the next time changes were made to the policy. When there are larger system changes, I4 are working more on passing on information and not so much directly with the implementation as I1 and I3 does.

##### **5.4.1 Credit risk systems**

During the implementation process of the credit risk systems, the interviewees told me that the people from the main office are travelling to the different local banks and talking to the

consultants, explaining the new systems and listening to the consultant's frustrations or complaints. SNN has only the latest years started to focus more on this type of interaction, but I1 expressed that they have experience good effects from this and that the consultants seem to appreciate it.

A huge part of getting out the systems and making them work is about culture. I3 talked about this culture part, and said that it doesn't help to work really hard on developing the best systems if those that are going to use these systems don't understand how these should be used and why this new system has been developed when there already existed systems for the same tasks. The importance of organizational culture is also stated in the annual report, where the culture is presented as the foundation of everything they do, and that should be communicated to and known by the whole organization.

It is also important to realize that the implementation isn't done when the consultants have received the new model or system and it has been explained to them, it is a continuous process. I1 therefore clarified that there is always possible to contact those that work on the main office if the consultants have any questions, concerns, feedback, or need support for something. I2 even said that the people working out in the lines are encouraged to ask questions, give feedback or let the management know if they see a problem or a risk. Sometimes they also send out questionnaires to the employees using the systems to see if it has had the desired effects, as expressed by I3. I3 also added that looking at the goals and financial measures can be used to see if the new system has had a good effect. Financial measures however cannot show everything, and I3 said that

*"... many times it is observable things, are we able to change the way we are working. We can just say that a number with two lines under it is the answer, but we need to see that a change has happened, and maybe also the customer has experienced a change in how we do things. I think that both when we are working with a goal structure that measures the effects, at the same time as we get feedback from those that are using them that this is something they have an advantage of using, but if we do it like this or that it will be even better".*

It is also important to acknowledge that even though a lot of time is used to develop and implement these systems, the consultants is the ones that knows the customers and the market the best, and they have to be able to question the models and the results they give if they find it necessary. As said by I1,

*“... we have a rule for these models, and that is that they must not be a black box. A model is a model, and we do have a lot of experienced people that have worked with giving credit and following up on credit for a number of years ...”.*

Because of this, the consultants have room for making individual assessments of the different customers. They do not only look at the system and the numbers, as these does not always give a good view on where the customer is in their life cycle, or for example if a company have launched a new, promising product, that will not always be shown correctly in the current numbers.

#### **5.4.2 Operational risk systems**

The system for operational risk that I2 talked about is implemented a bit differently, as it is used by leaders on different levels and not by the consultants. When for example an event occur or there is a complaint from a customer that has something to do with an operational risk or mistake, a leader within that area gets an email that says that he or she is made responsible for following up in that event, find out what has happened and decide on which actions to take. An example of such an event, presented by I2, is

*“... last year it was a truck that crashed into a post outside a bank in Finnmark and they lost the internet connection, so they were not able to help the customers in the same way, right, and that is not good, those customers does not get the experience that they wish, and maybe there are some cost to getting it fixed, maybe you get some replacement money, but it has a cost that is that the customers are not satisfied, or that there are actual costs in that someone has to work overtime to get things in place again, and there is that kind of information that is registered in the system when some kind of event occur”.*

This is just a larger example, and the system is also used for smaller events that may occur.

I2 then told me that all the information about such events will be stored within the system, and all the leaders can go in and look at it. This is not only used to take action on current events, it can also be used as a tool for predicting what kind of events can happen in the future. If a similar event where to happen twice, it can also be used to see what actions was done the first time, and to see if something should be done to avoid that a similar event happens again. As expressed by I2

*“So this system is meant to support us with different methods to manage risk and improvements, or quality and risk. And this system is built on different modules so there is inn data from different parts of the organization. And also, everything is documented and collected in one place and then we can see the context afterwards”.*

Even though the system itself is only used by the leaders, all employees on all levels has a responsibility to report it to their leaders if any event were to occur. In that way, everyone is involved in the processes around the system, just in different degrees.

Another difference with this system that I2 told me about is that they started to implement it and use it before the development process was finished. In that way, the process of developing and implementing became more interactive as new developments was continuously made as the need for them was found, and then that was implemented as soon as it was developed. Because of this process, the system has a very large potential.

## **5.5 Changes within the field of risk**

As a couple of the people I interviewed had worked within the risk field for many years, I took the opportunity to ask about how they though the field have changed over the years. I1, which have worked with risk for over ten years, expressed a rising complexity within the field, and said that

*“Earlier we had very simple models, and they were not based on that much real knowledge, but when we now are making these PD-models we are collecting data from all companies in Norway so then we have a load of key figures, so then we know who have went into default and who have gone bankrupt, and then we can look at which key figures that predicted it the best”.*

### **5.5.1 Standards and regulations**

Several of the interviewees expressed an increasing number of standards and regulations from the government’s side over the years, especially after the financial crisis, which required a lot of changes in the systems and models the banks had. I3, which have work with risk for ten years, said that

*“But then like you say it is a strict regime for bank, a lot of requirements, and that is something that have occurred over the last years, it wasn’t like that before”.*

Also I2, which have only work with risk management for 2,5 years acknowledged that there have been some changes within that time period, and explained that

*“There are new regulations coming regularly that we need to adjust to. We have made some reports where we have chapters on what is the changes from last year. It is things that we need to adjust to and it is things that we need to inform the market about that we are doing differently. So when we delivers the numbers now in 2017 they can go and look at the same numbers we reported in 2016 and 2015, and if they know what we have done differently they also know how to relate these numbers to each other”.*

Even though reporting on these changes is something SNN want to do to explain the changes, it is also a required to inform the readers of the reports about it.

After the financial crisis, the involvement from the EBA also increased, and as Norway is a part of EEA, it affected Norwegian banks. According to I1, this involvement was mostly in that they have a lot of surveys send out to the banks, which might not seem to be intended for smaller, regional banks like SNN, and it therefore takes up a lot of unnecessary time and resources.

### **5.5.2 Change of focus**

The risk focus has also changed a bit in banks also. Traditionally, when people talked about risk in finance they were only talking about credit risk. That has changed, and I3 said that

*“Bank traditionally have been a lot of credit and focus on credit, but there pops up many, many, many new risk areas that are important, where reputation risk might be the most important today in finance”.*

Therefore we can see that the field of risk, and also working in the risk department of an organization, has brought a wider variety of risk types and tasks over the years. Where the largest risk earlier might have been getting robbed, the biggest risk now might be related to the reputation, if the bank is realizing its strategies and if the bank has faithful employees according to I3. Managing all the information the bank has about the customers and taking care of the value of this information is also important in this process

There has also been changes within the credit area, and I4 expressed that



*“We see that within credit and credit granting especially they are trying to simplify and facilitate for automatization in the highest degree possible, that is something that is going to continue long into the future. And also it is maybe a bit that they wish to go more towards portfolio management, which is the other part of credit”.*

By this there seem like a change has started that will continue to develop into the future.

### **5.5.3 Development of systems and policies**

The way that systems and policies are developed has also changed a bit over the later years, and I4 told me that

*“Earlier we didn’t think about capital bindings at all, or rate of return, or anything, it was much simpler parameters to work after. This has come after the implementation of IRB, that is something that has come the later years. So you have maybe turned around and think more about top line and returns and not just breaking even.”*

### **5.5.4 Core business**

SNN has also made some changes themselves as to what they want to focus on as a bank. Earlier they had investments in Russia and in the Norwegian bank in Oslo, but they have now removed themselves from there and instead refocused their core business, which have been very important for their development. In the annual report from 2016, SNN wrote that this was done in the beginning of the year, and the reason was to focus back on Northern-Norway as their main area of operations. I3 expressed that

*“That has brought our volatility down, and it has been very important in relation to the market and the communication to the market. It has been a lot here in relation to risk management, and you can say that things have developed and the bank has become more and more mature as we think about risk management in a totally different way”.*

These choices have therefore been very important for SNN to become the bank they are today with Northern-Norway as they main focus and business area.

## **5.6 Summary**

I am now going to shortly summarize my empirical findings before moving on to the analysis.

Firstly, risk is a big part of the daily operations of banks and is in a way what they live by, and can therefore not be totally avoided. The interviewees also agreed on that risk should not be avoided, as long as you can understand and manage it.

When it comes to the framework that are being used, the interviewees mostly mention data, statistical model and measurements, the policy, the guidelines, and the document structure. One interviewee shortly mentioned the COSO framework, but the annual report could add that the COSO and CobiT frameworks were being used within risk management and internal control.

For the development of the risk management systems, this is mostly done with system developers within the alliance. The operational risk systems are the only one of the mentioned systems that is not developed within the alliance. In addition to systems, the bank also has guidelines and policies, and these are developed within the bank, and not the alliance.

The implementation of the risk management systems is done outside of the alliance, and each bank is themselves responsible for this process. The people working on the main office will then travel around and talk to the consultants about the new systems and what changes have been done. Open communication lines are very important in this process, and the consultants can ask questions or seek support whenever they may need it. These processes are quite similar for both the risk management systems and the policies and guidelines.

There have been a lot of changes within the field of risk over the later years. Even though Norway was not hit that hard by the financial crisis of 2008, a lot of changes is related to this, and started happening during and after this crisis. The models and focus of banks had also change over the years, the models becoming more complex and the focus widening to more risk types and areas.

## **5.7 The future of risk management**

Before moving on to the analysis, I also want to shortly present what the interviewees thought about the future for risk management on banks. As there are some discussions about how the future of risk management should be, considering for example dynamic and uncertain

markets or if there should be stricter or less strict regulations, I thought it would be interesting to see what people actually working in banks was thinking about the future. These changes that might happen can also create challenges for the models and systems that are currently used, as the assumptions these build on might not be the same as the assumptions in the future. This can create problems with using the current models and systems. I1 expresses that one of the problems with models is that you will not be able to model and prepare for all surprises, or “black swans”. Instead, it becomes important to have a diversified portfolio and operate within different industries with different drivers, so that if one industry experiences a downturn, it will not threaten the existence of the bank.

I have divided the discussion of the topics related to the future of risk management talked about during the interviews into four subsections below.

#### **5.7.1 Dynamic markets**

When it comes to dynamic markets, I2 had this thought about how dynamic and changing markets affects the systems:

*“When there are a lot of changes happening around you, you need update all your evaluations, if not they are out of date, they are not relevant anymore. On the other side you need to rig your organization and the risk management department so that they are able to keep up, they are not only working with a routine today and then they don’t understand anything tomorrow when things change, you make a dynamic organization so that they are used to work with changes and are able to change a little thing here and a little thing there. Sometimes there are larger changes that are happening so then they stop working like they did last year and then start to work in a different way. That is becoming more and more important, and those systems and methods we are using in the risk management need to be adjusted to those kind of changes, we don’t look for specific structures, but we look for elements that repeats themselves”.*

Therefore, it becomes important to have good guidelines as the foundation of everything, so that even though systems might be changing, the employees know the guidelines, rules and values to work after. If the employees are only working based on a routine that is set to today’s situation, they will not be able to adapt if the situation or markets changes, which will be a huge setback and competitive disadvantage for the bank.

There will also be more important with effective risk management processes when things are just moving faster and faster, if not you will not be able to keep up with the changes that are happening around you. The system that I2 presented, that collects all the information within the system and makes it easier to find, will also help the organization in making faster risk assessments and changes. Having more of those kind of systems might be important for all organizations in the future.

### **5.7.2 Standards and regulations**

When it comes to the regulations and if there should be more and stricter, I3 said that

*“I think it is a limit for regulations, it is not everything you are able to regulate, then you will just be operating within a box all the time and that is not possible I think. It is more about adapting the company to the dynamic market, especially related to the digitalization, but I also see it as a possibility to simplify management and control in that we use the technology there too, it is more embedded in the systems and what you are doing, and that is what you see in a lot of the improvement of efficiency on the customer level, when you go to an online store and use it today it is simple, you get a yes or a no”.*

To have even more regulations does therefore not seem like a good idea. This goes for both regulations from the government and those made internally in the organization, as it will just put limitations on the possibility to develop both the organization and the industry. It might also limit the organization's and employees' ability to act in a fast-changing market, so if for example Norway was going to have even more and stricter regulations while other countries don't, that might give them a disadvantage in the international market.

I4 also seemed to agree with that, and said that

*“Well, we have become very standardized and it clearly has some advantages, but you need to be careful, when it comes to credit, you need to be careful about standardizing it too much related to performing the craft of banking, because in the end when it comes to credit it is a craft also”.*

By applying more and more regulations, the people working in the bank will not be able to perform their job the way they used to, and instead we could just have robots do their job, which will take away the consulting and individual assessment part of banking. That can be

negative for how that customers experiences the bank and for the customer service in the market. Also, there are some factors about customers that models and standardizations is not able to notice, and by taking away the consultant's possibility of individual assessments, these factors will be ignored.

### **5.7.3 International framework**

Another consideration when it comes to the future is if there should be an international framework that everyone should use. I1 agrees that this would be more transparent, but thinks it is difficult to get it to work in practice, as there are a lot of differences, but then again

*"...they are not so different, so more similarities should be possible. It would make it easier to evaluate. The most important expenses for us are what it costs to collect the under-balance we have between lending and deposits, and if there had been more transparent, the assessment for the funders would have been more similar, and there would have been a more even competition".*

At the moment, there are some differences, especially between the European and American bank industry, and going over to an international framework might be difficult and will take a lot of time to figure out. But the standards on how the reports should be presented within the bank industry might be easier to make more similar. This could help multinational organizations as they would have just one standard to follow, and it would also make it easier to compare organizations from different countries

### **5.7.4 IT development**

The IT-industry and its developments was pointed out by I3 as something that will affect the future of banks and I3 said that

*"I think It will be a part of revolutionizing bank, so the customers will be doing more themselves".*

These developments will also affect how people are working within the bank, as more and more procedures can be automatized, which is changing people's work days. Technological developments can also make processes easier and more efficient, and bring down the amount of mistakes that are being made. However, to automatize everything will take away both the craft of banking and the human contact with the customer, which might not be a good idea. If

more processes and contact with the customers are going to be automatized, I think it will be important to still have a possibility for the customers to contact an actual human at the bank to ask questions or be given explanations as to why this or that decision was made in the automatized process.

## **6. Analytical chapter**

From the frame of reference and analytical model, the development and implementation of risk management systems seems to be a very standardized process, where you follow certain steps in all the processes. But after talking to some of the people in SpareBank 1 Nord-Norge, that does not seem to be totally the case there. Therefore, it seems to be some differences between how SNN are doing things and how the theory has suggested this process should be done. I am now going to look at both the differences and similarities that I have found.

### ***6.1 View on risk***

My general impression after the interviews is that none of the interviewees looks at risk as something dangerous that should be fully avoided. Instead, risk is viewed as a combination of plusses and minuses. This is in line with the analytical model and ERM. As long as you are able to manage and understand the risk properly, both the theory and the interviewees agree that risk is a good thing. This is in line with what Dickinson (2001) presented about ERM focusing on how to best manage the risk that faces you.

During the interviews, it was also pointed out that risk is a part of the daily operations, so it is not possible to fully avoid risk in this industry. Therefore, working within the bank industry, the focus needs to be on managing the risks, trying to understand them, and somewhat control them. That does not only go for the management, it needs to be taught to the employees working out in the lines as well, as those are the ones working closest to the market and are making a lot of decisions related to risk. Risk management therefore becomes a top-down, overall process and system, as presented by Dickinson (2001) and Mikes (2009). Nocco and Stultz's (2006) article also takes up this problem, and says that banks are in the business to take risk, and understanding the risks it faces will give them a competitive advantage

As risk is so much a part of the daily operations, it also means that the employees need to see the advantages and opportunities that come with it, so another risk becomes if the employees are afraid of risk and are trying to avoid it too much. If this is the case, the bank can miss out on many opportunities to grow, and will give them a competitive disadvantage. This is not just bad for the bank itself, but also for the owners and other people that have invested their money in the bank and expect a return. Therefore, this need to be made clear to the employees through for example the values and guidelines they are working after.

When banks are giving out loans, they know that not everyone is going to be able to pay back the money, so they are already there aware of that there is going to be some losses, and risk here becomes more of a question related to how large losses are we willing to make room for in the model. Of course, the bank wants the losses to be as small as possible, but no losses is just not realistic. One advantage of using ERM is that it helps in managing the risk so the bank can reduce the probability of large, unexpected losses

There is a difference in how the bank views corporate and private customers when it comes to the risk they bring. Corporate customers are those that brings the largest losses to the industry, and are therefore also the ones with the largest risk. Because of this, the decision process when it comes to taking on new customers and giving out loans is longer and more complex here. With private customers on the other hand, there is generally not that much risk and losses, and the decision process is shorter and simpler. However, the development in the debt structure for these customers, with more and more consumer loans, have brought a larger risk with private customers than what have traditionally been seen, so the bank is therefore watching this market more closely than before.

Overall SNN's view of the risk is in line with that of ERM, as they are not avoiding risk, but instead focusing on understanding their risk so that they can find a good way of managing it. However, ERM does not say anything specific about risk in corporate and private customers and the differences between them, as was told to me during the interviews. Therefore, this differentiation has nothing to do with the ERM.

## ***6.2 Framework used***

Even though ERM is presented as a recommended framework for banks, none of the people I interviewed mentioned it when I asked about the frameworks. I also asked more specific about ERM and COSO in one of the interviews, but the answer was very shortly about COSO and still not even mentioning ERM. This might mean that ERM is not as widely used as the theory are making it appear to be. It can also be that since the articles used in my frame of reference are from international and larger companies, it is not as widespread in Norway as in other countries, or it is not used in the same degree in smaller banks. Another possible explanation is that SNN has a different organizational context, and they are therefore affected by different factors than the large, international banks, as suggested by Chenhall (2003) and Otley (1980).



Because they are not using any larger frameworks like ERM, it seems like they are focusing more in the internal models, data and policies. For the credit area, a lot of key numbers and statistical measures are being used for each individual customer, which is used to rate them on how risky they are. This is seen in relation to the set frame of how much risk the bank is willing to take, and that is used to make decisions about the customers.

Looking at the annual reports, I can however confirm that COSO is being used for the internal control in the whole bank, and they are following the five levels of this framework. In addition, for the internal control and risk management in the IT department they are using the CobiT framework.

SNN is also using their policies as a part of the leading framework for risk management. This is more of a written guideline for the individual banks as to how they should treat the customers and their risk, and is largely based on the banks overall strategy. To use the strategy as a part of the risk management is in line with the ERM framework presented in the frame of reference. In addition to these written documents, the bank also has written guidelines for all the different risk areas when it comes to what level the risk should be on within that area, and where they wish that risk should come from, and what types of risk and customers to avoid.

As we can see from this, SNN is not using the framework ERM as I assumed in my analytical model. They are not even mentioning it in neither the interviews nor the annual report. One reason for this might be that the contextual factors for the organizations in previous studies were different than those of SNN. The technology might not have that much effect here, but as SNN is a regional bank in Norway, their organizational structure, environment, size, strategy and national culture is different than that of the international and often larger organizations in the studies. They are however using the COSO framework, which is a larger, international framework.

### ***6.3 Development of risk management systems***

One important decision that will affect how the systems are developed is if each risk should be considered individually or within the whole context of the organization, as presented by Nocco and Stulz (2006). The ideal would be to look at risk in the total context of the organization, which in a simplified way is what ERM is about. SNN do this on some areas or in some instances, but they don't do it for everything in the whole organization. As they don't have one large system that they can do everything in or put all the information about different

customers in, and no such systems exists, it makes it more difficult to consider the whole context. Therefore, SNN develop several smaller systems for different areas that can be used together if you want an overall assessment. Also, within some areas of credit there are very straight forward regulations and frameworks, so there is not a need for more complicated decision processes or assessments. This means that SNN does not use the full ERM framework as presented by Nocco and Stulz (2006) and Mikes (2009) in the analytical model, but what they do is in line with some aspects from it.

With both corporate and private customers, which is very different as explained above, the bank needs to develop different systems for these two customer groups. For corporate customers, the models they develop need to treat information from the official accounting reports, and in addition, there has to be possible to put in behavioral data to the system. With private customers, the models only need to treat information about the customer's tax numbers. Again, we see that the work with corporate customers are more complex than that with private customers, and it requires quite different input data.

When it comes to the actual development of the systems, that is for the most time not done within SNN, it is done within the SpareBank 1 alliance. As none of the interviewees were a part of the development that happens within the alliance, I could not get that much detailed information about that process. I could not find this information in the annual report either. What the interviewees could tell me was more of the process around it.

How the development starts depends on what kind of system it is. If there is a large totally new system, it starts within the alliance, and the local banks can come with input as to what they want from the system, and then the development is done within the alliance. If there are changes or improvements to already existing systems, it often starts with one of the banks seeing a problem or a possibility for improvement, and then this is brought to the alliance. Employees from the different banks will then be able to come with input as to what they want to change, what the problems with the current systems are, and how that can be improved to make their work day easier. The developers within the alliance will then work on the system based on this. As the consultants are the ones working closest with the customers, their input will always be very important in the development process.

During the developments process, some of the employees in the bank is involved as system testers. They then get a version of the system that they are going to start using, and tests how this system works in practice, what is good about the system, what could be improved, or

is there something missing. This feedback is then brought back to the developers, which then keeps on working with the system. In this way, it becomes a partly interactive process with the different banks, but only with the people within the test group. This development and feedback process goes back and forth a couple of times, but at some point they have to say that the system is good enough and start using it in the whole bank.

The advantage of having the development within this alliance is that it would have taken a lot of resources from each individual bank if they were going to do it by themselves. Also, since the alliance has access to data from all the different banks, they have much wider database to work from, which can help find better solutions than the banks would have been able to by themselves.

I2 presented a system where the development was done a bit differently, which was the operational risk system. The development is not done within the alliance with this system. Instead, it is an external company that does it for them, where the bank can come with input and develop it together with this company, so it is a very interactive process compared to the other systems. The fact that the company that is developing the system is local to Tromsø is very in line with SNN's values of being in Northern-Norway and for Northern-Norway, as they are then supporting a local company and contributing to the local economy. The system is now used in the different banks within the alliance as well, and they can all come with feedback, but the development is still done by the company in Tromsø.

Systems and models are not the only part of the development within risk management. It is also very important with guidelines, routines and policies. This development is done by the management within each bank, and not within the alliance, and it comes in the form of written documents that the employees will then use. In many ways, this is going to tell the employees how they are going to do their job and why they are going to do it that way, so this development process is very important for the bank to be able to reach its goals. Especially for organizations like banks that have such huge amounts of sensitive information about their customers, which brings a lot of risk, it is important with guidelines on how to treat that information and how to handle it correctly.

For the policies, there are also a difference between those that are developed for the corporate and private market. Policies for the private market are more technical and overall for all customers and tells the consultants to click here if this or click there if that. For the corporate market, it is again more complex. As SNN is working with customers in different industries,

there is not one overall policy, but instead several policies based on the industry or the type of customer. The policy for the corporate market will therefore be a much larger one than that of the private market.

Another important consideration is that the financial sector has a lot of laws, regulations and requirements that they have to follow, and it is important that the systems that are developed give results and output that fulfills these requirements, and that the process and handling of information is done in line with the regulations and laws. In addition to the Norwegian laws and governmental requirements, as a part of EEA Norwegian banks have to follow EU regulations. This is regulations and requirements like Basel III and Pilar 3, that are presented in the frame of reference. Only Pilar 3 was shortly mentioned by I3 when it comes to these regulations and requirements, and Pilar 3 was also mentioned in the annual report of 2016, were they told that they have made an individual document about it.

Although it does not seem like they look at risk in the larger context in the everyday work with customers, every year they do review all the different types of risk, what the total risk in the organization is, and look at the diversification between the risks. The different risks they consider can be found in figure 2.3, and includes credit risk, market risk, operational risk, liquidity risk, owner risk, business risk and other risks. Based on this they make a report to the Board, but this assessment is not used in the system development. Even though I did not get any information about this process specifically, it seems to somewhat be in line with the steps presented in the analytical model of identifying and measuring risk. I was not able to gain access to if this process is done with the same identification and measuring methods as recommended by Nocco and Stulz (2006) in the frame of reference, the only thing I could see from the models I was showed during the interviews was that they calculate a total risk based on the measure of a range of other risk types.

As we can see, and also since banks are working with risk on so many different levels, risk management becomes more of an overall, all-encompassing package, as Mikes (2009) suggested. Developing the risk management systems is therefore also based on what goals the bank has; what volatility do they wish to have in the bank, what kinds of risks do they want to take or avoid, and how large losses should be allowed. A big part of this is also looking at the strategy of the bank, and Mikes (2009) wrote that it is getting more common that risk management is a part of the strategy and strategic decisions. The strategy is therefore implemented in the guidelines and systems that are being used in SNN, and all the employees

have to look at bigger picture and overall business model, even though they might not be aware of it. The interviewees expressed that this is more of a newer development within risk management, and this overall view has not always been a part of the development of risk systems, which is confirmed by Mikes' (2009) article.

As I was not able to gain access to more details about the development of the actual systems from neither the interviews nor the annual report, it is difficult to conclude on if what SNN do is the same as ERM and if they are following the steps of identification and measurement of risk presented by the ERM framework. From what I learned during the interviews however, the process seems to be quite different. I know that the management is working with this and that they are identifying and measuring risk types in some way, as is also some steps in ERM, but how they do it is not known to me, as the interviews was not able to give me any information on this, and the annual report did not go into specifics either.

When it comes to regulations and requirements, and the role they play in the development, I know that SNN is aware of them and working with them, but they did not name any of them, like for example Basel III and Pilar 3, in the interviews and I don't know in detail how they are working with them or including them in their models and systems. Pilar 3 was however mentioned in the annual report, so I know that they are at least aware of this and following those requirements and regulations. Therefore, my assumption from my analytical model about them being taken into consideration both when developing and implementing the systems cannot be confirmed to be done at SNN.

#### ***6.4 Implementation of risk management systems***

When the development of the systems is finished and the implementation starts, the role of the people I talked to in the main office is more of support and enlightenment. They will travel around and present the systems to the consultants and help them get started with using them and listen to any questions or frustrations the consultants might have, which is in line with Dickinson's (2001) top-down approach to ERM. This is something SNN has started doing the latest years and seen great effects from, as this makes the employees feel more included and seen by the management.

The implementation process is not finished as soon as the consultants have gotten the systems and the people from the main office have left. An equally important part of it is the support that happens afterwards in that the consultants can still ask questions, seek support and

come with feedback to the main office. The later years, the management has even started encouraging the employees to do this, as it is greatly appreciated by them, and it helps them being aware of problems and risks within their organization that they might wouldn't have seen otherwise.

The implementation process is not only about informing about the technical aspects about the new systems. Creating a common understanding as to why they need this new system or why they should change the way they are working is also a very important part of the implementation phase. Nocco and Stultz (2006) also presented this as a crucial part of the implementation. This can be very difficult, as you sometimes have to change people's attitudes in this process, and if people like the way they have been working previously and don't see any problems with it, they might not be as willing to change. A lot of focus therefore needs to be put on this as well during the implementation and the meetings with the consultants. A big part of this is also to have a good culture as the foundation. This is something that needs to be build from that start with new employees, and not just when a new system is being implemented. When implementing ERM, this is also one of the main focuses, as it is important to create understanding at all levels in the organizations, so we can see some similarities to SNN's implementation here.

A part of the work with the implementation is also to see if it has had the effects the management hoped it would. This can be done by sending out questionnaires to the consultants where they can anonymously give their feedback. SNN is also using financial measures in this process to see if it helps them towards their goals, but it is important to remember that financial measures do not always show the total picture. There are some similarities with the analytical model and assessing if the implementation of ERM has been successful, but what they are looking for in this process seems to be different.

When the new policies are implemented, the process is in some ways similar to that of the risk systems, in that the role of the people at the main office is to travel to the consultants and explain the new policies. In this process, a lot of the focus is on explaining the changes that has been made, as this might require the consultants to change the way they have been working and thinking about their customers. Changes in policies is therefore often not so much about technical changes in the systems, but more about the mindset of the employees. During this process, the consultants can come with feedback and suggestions to other changes that can be made, and these will be taken into the consideration next time the policies will be changed. A

very good thing they are doing here is that either the suggestions will be taken into consideration and changes will be made, or the person that came up with the suggestion will get an explanation as to why they didn't use it. In that way, the employees will feel that the management is actually listening and seeing their suggestions and feedback, which is important for the employees to feel seen and appreciated. This can also lead to employees being more willing to use their time on giving feedback, as they know what they say will actually be read and considered.

With the operational risk system, the whole process is a bit different than the other systems and policies. The implementation started before the development of the system was finished, and as previously said, changes are made continuously in an interactive process. As soon as a change has been made to the system, it is implemented. Another difference is that a lot of the other systems is made towards the consultants and other employees out in the lines, while this system is for leaders and managers at different levels. They use this system to, among other things, follow up on events that happens further out in lines and to assess the quality of the work that is being done. Even though the leaders and managers are the only ones that are using the system, employees at all level are required to report it if events were to happen, so they are indirectly a part of the process around the system even though they are not using the actual system themselves.

Overall, it seems like the implementation of the risk systems in SNN is done in the same ways as with ERM as it is a top-down process where the focus is on employees at all levels of the organization, and creating a common understanding is an important part of it. There seem to be a good information flow both up and down in that the people from the main office travels around and talks to the consultants, and the consultants can all the time contact them and come with feedback and questions. This process is therefore in line with how the implementation process is presented in the ERM framework.

## ***6.5 Changes within the field of risk***

As many changes have happened within the field of risk, it has required banks to change a lot of the ways they are working, what they are focusing on and how they are reporting. One of the reasons for these changes are that there have come a lot of new standards, regulations and requirements over the latest years. A lot of this came after the financial crisis in 2008. Even though Norway was not hit that hard by the financial crisis, the government saw what it did to

a lot of other countries, so it is understandable that they wanted stricter regulations and standards after that to build a more robust financial industry and economy.

This have also led to a rising complexity when working with risk. Earlier then models were very simple and only looked at a few key figures. Now the models are much more complex and using a larger amount of data in the evaluation of risk. The way banks have to report information about risk, and also what information that need to be included, has also changed, so the reports have become larger and more complex as well, which takes up more time and resources for the banks.

The focus of the whole bank industry has also changed when it comes to what type of risk they are looking at. Earlier, credit risk was the only type of risk that banks focused on, but now there is a growing number of credit types that have come to banks attention. From figure 2.3, we can see that there is a wide range of risk areas that SNN is now focusing on. One of the newer risk types, that Nocco and Stultz (2006) also presented in their study, is reputational risk, which has gotten more and more focus the later years. As banks are a place that people chose to keep their money, it is important for them that it is a safe place that they can trust. The reputation of the bank is therefore very important, and one incident can ruin the reputation of a bank for a long time. Also, once your customers lose their trust to you, it is very difficult to get it back.

SNN as a bank has also changed their focus the later years, dropping investments that are not a part of what they want to focus on as their core business. They had investments in Russia and other parts of Norway, but chose to get rid of them to focus back on Northern-Norway, as this is the reginal area they are focusing on. This has helped them with the goal of being the bank that knows the Northern-Norway market the best and being the best alternative for companies within this area. Making these decision about the previous investments has also been an important part of communicating to the market that Northern-Norway is their focus, and gaining the markets trust.

Automatization is a part of a lot of changes that are happening within banks, and that will most likely continue to change banks in the future. From the annual report, I could see that SNN started using their first digital robots, which they call digital assistants, in 2016. This automatization helps simplify the processes, but it also brings a new risk to the bank. With a lot of information stored within these systems, banks are very exposed to cyber-attacks, and good safety systems has become very important for banks



Overall, a lot of changes has happened to many different aspects of both banking and risk management. Some of these changes was initiated by the government and through laws and regulations that the Norwegian banks have to follow. Other changes started with the banks, and them choosing to change the focus, and because they have seen changes in the markets. Developments within other industries, like the technology industry, has also created new opportunities for the bank industry, and has been a driver for some of the later changes that has happened.

## 7. Conclusion

I am now going to answer my research question based on the frame of reference and my empirical findings. My main research question is:

*“How are the risk management systems developed and implemented in SpareBank 1 Nord-Norge?”*

I also created these three sub questions to be able to answer the research question:

- i. What is a risk management system and what is known about it in banks?
- ii. How are the risk management systems developed in SpareBank 1 Nord-Norge?
- iii. How are the risk management systems implemented in SpareBank 1 Nord-Norge?

Answering the first sub question, I am going to look back at the frame of reference. A risk management system is something that helps the organization to manage the risks it is surrounded by and understanding how it can affect them. This can be done both by looking at one risk at the time and all the risk together in a framework. For banks, the latter alternative is the most recommended, often through the framework of enterprise risk management (ERM). ERM presents a universal model that can help an organization to manage all the risks it is facing through a top-down model and by looking at the overall strategy it has. This model tells the organization how it should identify and measure the different risks that it faces.

For the second and third sub question, I am going to look at the empirical data, including both primary and secondary data, and the analysis of these findings. When it comes to the development of the risk management systems, this is mainly done within the alliance that SNN is a part of, and very little of the development work is done by the employees within the bank itself. The role of the employees of SNN is more of that to come with suggestions to improvements, present issues with the current systems and give feedback on the finished systems.

When it comes to the implementation of the risk management systems, the employees at SNN has ownership to that whole process. Representatives from the main office in Tromsø travel around to all the banks in the region to talk to the consultants that are actually going to use the new system. They are then presenting the new systems, how to use it, why they have developed a new system, and how it can help the consultants. In addition, the consultants have

the possibility to ask questions and seek support when starting to use the new systems, and it becomes an interactive process.

There is also a difference between private and corporate customers at SNN that is not mentioned in ERM. Private customers bring less risk, and have simpler systems and policies. Corporate customers on the other hand brings more risk, and have more complex systems and policies. Therefore it is a difference in how SNN is working with these types of customers.

As stated in the analytical model, ERM is often recommended to banks. However, SNN is not using this framework officially, which is very surprising. Nevertheless, SNN's framework contains some similarities to the systems and models from the ERM framework. This might suggest that ERM would have been a good framework for smaller and regional banks like SNN, and not just larger, international banks like those in previous studies on the topic. It might also suggest that only parts of the full ERM framework is fitting for smaller banks, and it is not as universal as it is made up to be. I have however just studied one bank, and it is not possible to make any generalizations based on the results I found here.

Looking back at the frame of reference and analytical model, all of the theory in that part did not end up being as relevant for SNN as I had thought because they didn't use the system and framework I had expected. Because of this, not all of the assumptions and theoretical findings in the analytical model could be related to the empirical findings, and is therefore not referenced to in the analysis of the empirical data.

## **8. Further research**

The field of risk management is very large, and there is still a lot of studies to be done there. My researched only touched a small section of this large, but interesting field. Further research that can be made is to look at the risk management systems in more banks of SNN's size, both Norwegian and international, to see if they are working in the same way. It could also be interesting to look at a bank in Norway that are using the full ERM framework, or possibly do a study where they follow the process of development and implementation of ERM in a Norwegian bank, to see if it has the same effects as it has in the larger international banks. It can then also be interesting to see how large the differences are between SNN's 'partly ERM' and the full ERM in a similar sized bank.

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## **Appendix**

### ***Appendix 1: Interview guide***

#### General questions

- For how long have you worked in the bank?
- What are your main responsibilities?

#### Risk understanding

- View on risk? (avoid/possibilities)
  - Independently/together (ERM)
- Which framework is being used?

#### Development of risk systems

- How are you developing the risk systems (main focus)?
- Are several departments involved in this?
- Do you look at the need of different departments and customize or more general system?

#### Implementation of risk systems

- How are the risk systems implemented in the different departments/lines?
- How much contact do you have with the employees in the different departments in this process?
- Feedback from different departments?

### Use of risk systems

- Are the (information from the) risk management system used differently in different departments?
- Difference on for example private/corporate customers?

### The future of risk management

- Development/changes in bank/risk management?
  - Standards/regulations?



## ***Appendix 2: Transcribed interviews***

### ***Interview 1***

Me: Hello, nice to meet you!

Interviewee 1: Hi, you too!

M: I was thinking to start with a couple of general questions about you, and then move to questions about risk and risk management, if that is okay for you?

I1: Yes, that sounds good.

M: Firstly, I was wondering how long you have worked here?

I1: I have worked in banking very long, but my background is that I am an educated auditor, I have also worked in the line, for a period I was a business consultant, then I have worked in internal auditing, then I have worked in economy, and then I have worked in the RM-department which is risk management and compliance for over ten years.

M: Then you have a lot of experience! And in the risk department, what is your main responsibilities or main tasks?

I1: I work with credit risk, with credit models and the risk management there.

M: Okay, and what is your view on risk, is it something good and possibilities or is...?

I1: Well, the whole concept bank consists of charging to take risk, so risk is both pluses and minuses, but what is dangerous with risk is if we take a risk that we do not have an overview of or that we do not understand how large of a risk we are actually taking. That is actually what is the most difficult with risk, when you are about to start something new that we don't have a total overview of. That is where we try to hold back a bit and see when it comes some new products, and also we have some frames to evaluate them on and at least understand some of what is in this and what drives the risks.

M: But when you look at such new projects or customers, do you look at them by themselves or in context with the rest of the projects you have when considering the risk of it?

I1: Well, ideally we try to see it in the context of what we are doing too, but that is not often a consideration on my area of credit, unless we are investing in some fantastic obligations for something, and we do that in a very small degree, mostly it is traditional lending products. There are relatively transparent and clear frameworks for that.

M: Is there a special framework that you are using?

I1: Our whole credit portfolio, we are sitting on quite a lot of data and overview of the customers, so we calculate the risk through a scoring model which calculate key figures on the customers, and a statistical model that calculate what we call PD or the default probability which give the customers a risk placement so we are watching the portfolio and risk classes and have a frame for how much risk we can take, and if something moves down in weaker risk we need to hold back there and then we calculate what is called loss probability; how large a loss in kroners can you lose on this customer and security providing's. We use these models and calculate what we call capital requirements, that is how much capital we need to have behind, roughly speaking, each lending in kroners, but we use to look at the balance sheet in relation to risk and balance. We are verifying these models all the time so.

M: So you are continuously watching if companies is moving within categories or?

I1: Yes, for example we are looking at how much we estimated that there could be in losses, and the hopefully few that actually went to losses, and how wrong we were. And for example those default probabilities, there is always someone that's going to default, so we look at if we had 100 new defaults on the corporate market one year, was that those 100 that we rated the weakest in the model. So we are simply looking at the models.

M: So there is always made room for losses in the model?

I1: Yes, you never get a 100% ideal model because the key figures you have is always a bit past related and you can have some economic cycles where an industry totally stops or something like that. That is something the models can not predict, that you have to fill in and have some reviews of what is it that we see here.

M: Related to the key figures that you use, is there any other set out number other than cash flow?

I1: Yes, we are looking at the normal key figures, that is liquidity numbers, equity percent and financial strength numbers. And also on for example commercial real estate for rent we have a special model that try to look at the vulnerability in loss of renting income and things like that.

M: So, I don't know how much you are working on the development of the risk management systems?

I1: Well, we have participated in making the models. I don't know how much you know about it, we are a relatively small bank in Norwegian context, but we are a part of the SpareBank 1 alliance where we have a common competence center where we can collect data from all the alliance-banks and build credit models.

M: But you are working individually with...

I1: Yes, we are working individually, but we are using the same models. And it is a large strength, as we get a wider environment and not least more data to look at when considering the best solutions.

M: I understand, but you that are working in the risk office here, are you working with assessment of the customers and making the models that are being used in this bank?

I1: No, we mostly work on model and portfolio level, and then those models are a part of the decision support system for the business consultant and consultants when they are following up on the customers, and considering what customers we should bring in.

M: When those models are being developed, can the different departments come with input?

I1: Yes, we have a rule for these models, and that is that they must not be a black box. A model is a model, and we do have a lot of experienced people that have worked with giving credit and following up on credit for a number of years, and the models, we are dependent on that those deliver results or scores that are understood as reasonable, and when a key figure that are understood as very important gets worse, the people that are working in the line's understanding is that this tells something about the risk of this customer. So they are a part of the development and provides suggestions for key figures, but there is not that much new development all the time so. So it is one thing what we report on how the portfolios are moving, but the largest changes in the portfolios are for those that brings in new loans, set it up and prices it, it is a little late if it comes a new customer with very high risk, so we have to come through and that the models are perceived as correct and giving useful input to the consultants.

M: So that it is working in practice and not just in theory?

I1: Yes, that it is working in practice.

M: In relation to if you are with corporate or private customers, are there different models?

I1: Yes, it is, that is actually pretty different. Firstly with corporate customers we are using the official accounting reports plus behavioral data that comes up on those that have been customers over a longer period, because those we know pretty well. While at the private market we are using tax numbers, but those models are different too.

M: Are you working with that too or are you more on the corporate side?

I1: No, I am working with both, but traditionally the loss on private customers is almost nothing, so it has been more on the corporate side. Now we are a little bit afraid of the debt structure on the private market, so we are watching a little more closely how high we let them gear considering mortgage and how large an interest rate rise they need to be able to withstand. We have as a part of the models that they need to withstand, and that is also a requirement from Finanstilsynet [the financial supervisory authority of Norway], that they need to withstand a 5% rise in the interest rate. To withstand 5% rise in interest rate if you buy a house here in Tromsø, that is tough. What I am most afraid of is that you can only get that much in mortgage, but how realistic is it that they have the rest as equity. If you buy an apartment for three millions here for a young couple, the largest danger for risk her in Norway is if they get the rest from consumer loans, so therefore we have as a rule here that they are not allowed to cover the equity through other loans. But I think a part of the very large growth in consumer loans is because of that. Then it is better that they get it as part of the mortgage to 2% interest rate and fixed payments than having a consumer loan on 200.000 that they are just barely paying each month, because that is charging their economy much more.

M: How there been a large growth of that?

I1: Nationwide it has been a large rise in consumer loans, but right now we have performed an analysis of our portfolio and what it can withstand.

M: But traditionally, the corporate customers have a larger risk?

I1: Yes, and they bring the larger losses. But with the private market, if the interest rate rises the private market will affect the corporate customers because the mortgage is the last thing that they default so then they are adjusting the consumption first, and companies will definitely feel that. If the consumption goes down, the company will have less income so.

M: But considering models and key figures, have you seen a lot of changes with the field of risk?

I1: Yes, we have seen that. Earlier we had very simple models, and they were not based on that much real knowledge, but when we now are making these PD-models we are collecting data from all companies in Norway so then we have a load of key figures, so then we know who have went into default and who have gone bankrupt, and then we can look at which key figures that predicted it the best.

M: Has there been a lot of changes in the standards and regulations that are coming from the government also?

I1: Yes, we calculate something called LGD, loss given default, and that is something that, given that we are IRB [Internal Rating-Based], we are allowed to use those model to calculate how much capital we need, and then those models are approved by Finanstilsynet and they have requirements that it should be so called downturn-estimates, that is loss estimates should be the worst-case loss on that customer when the economy is, as we say to companies that it is like 'selling chickens in rainy weather', it is the worst, and therefore there is some pretty large margins on that. If we have a commercial real estate where there are many contracts and we

calculate a margin there is no big job to put in the market value, but it is when inputting the capital requirement that he says that 'we believe in your market value today, but when it needs to be a downturn-estimate you have to reduce that value with 55%'. So when we are calculating the loss on capital requirements then, if we have a commercial real estate to 200 millions here in the city we are only allowed to use a little under 100 to the market value because if we have to sell it. So those models have just become stricter and stricter, especially after the financial crisis, I think they were afraid then.

M: A lot of the literature also says that after the financial crisis there were very larger changes, at least for bank and finance.

I1: Yes, we had just became IRB-approved and we thought that even in downturn the commercial real estate should be enough with 30%. But Finanstilsynet was troubled when the capital requirement went a little down for the banks that used their own models and the historical loss had been so low that there wasn't a problem statistically to say that it should be enough. But it is very difficult to say that 'yes, in downturn and if the economy is totally against us, we don't have any experienced loss', so Finanstilsynet required that there should be something that corresponded to the financial crisis in the end of the 1980s. We don't have good data on that, it was totally different ways of operating a bank the and totally different evaluations, and we didn't have that kind of models so.

M: In a lot of what I have read there are discussions about that if uncertain and dynamic markets should lead to regulations being stricter or less strict, do you have any thoughts around that?

I1: Yes, that is a model's nemesis, that you on basis of data is not able to model a black swan, that surprise you would not be able to... And what we try to do with that is that we strive to have a diversified portfolio and not 'put all the eggs' into commercial real estate, we want to have different industries where we mean that if it hits one of the industries, we will be fine, and we should be able to withstand to have a bit larger loss on that group. We are trying to steer that we don't, what we call for concentration risk, that we don't have that much in

industries that have about the same drivers and can stop at the same time. We need to be able to take a hit, and have enough capital to safely be able to at least continue operating. We may have some hard periods, but not so much that it threatens our financial strength.

M: No.. But a little bit back, after you have developed the systems and start to implement them, is it so that you are working with and talking to those that are working directly with the customers or...?

II: Yes, we are out and talk about the models in the lines, we have maybe been a bit too bad at that, we have mostly talked into management level, but we have experienced that it has larger impact by going out and talk to for example the business consultants, because they often have some frustration, that a business consultant is thinking 'why is this customer becoming so bad here, I actually think that it is good'. So it is very important that we get to talk to them about that, and that we have actually just now lately, the past years, tried to prioritized and find time to do. I was inn Finnmark last week for example and talk to all the business consultants and talked about the models. Something disappears on the way down through the managers and I also think the business consultants think it is very nice to be able to talk directly to us and see what our models mean.

M: Is there normally no possibilities for direct contact or?

II: Yes, there is, it is often that there is a composite group. It is those that hasn't felt safe enough to contact us that is the most important that do contact us, and it is those that we need to contact, because they can also learn a bit more about the models, and become a bit safer with them and also it is important to show that we are in the same company, and we do basically have the same goals. So there we have become better and we have also realized that it is important, because earlier we have maybe thought that here are the models and we have good presentations that are there so that people can read it themselves, and we have talked to the management and the follow up that we are doing to see where it is not working that well and where it is positive input, and where we have to think about how we are doing things. I



think we eventually will get better feedback by talking to the people in the lines, those that are meeting the customers.

M: Is there a lot of feedback related to...

I1: Yes, the business consultants think it is fantastic to be seen and that we come out to them and are not just sitting at the office.

M: But when the consultants are evaluating customers, is there only the models and key figures they are using, or are there room for individual reviews also?

I1: No no, that is one of our messages, a model is a model. It is statistically correct and works, but a customer is an individual customer, and that is why we have business consultants, they should know the customer the best. Also in addition to the models you can do some thorough analyses and discuss the customer a bit more freely, but also based on key figures and performance on that customers, but there you can say that now the customer has launched a new product and that seems to be selling this and this much and therefore it is likely that it will be better the next time. That is allowed, because we can not take the content of the consulting role away, then we could just operate through one of these [points to his computer].

M: True. But a bit back again, do you use anything from enterprise risk management or the COSO-models or...?

I1: Yes, we're at least using COSO.

M: Okay. You are mostly working with credit so I don't know how much you know about this, but often companies identify all the risk types in the company and then calculate the total risk. Do you look at the credit risk by itself or in relation to the other risk types?

I1: Yes, credit risk is my main field, but we do have models for many types of risks, and once every year we have a set ICAAP [Internal Capital Adequacy and Assessment Process] as we call it, where we review all the risk types and how much the total risk is and analyze the diversification effect between the risk. But we have an overall risk assessment, and from the risk department we deliver a report to the Board every quarter, where credit risk is a part of it, but we try to look at the total risk.

M: Yes, risk management is an interesting field and there are a lot of changes that affects it...

I1: Yes, what we are a bit frustrated about sometimes is that after the financial crisis have EBA [European Banking Authority], that is the European got involved, and there is so much surveys that they have where the questions maybe are more adjusted to Deutsche bank than a relatively local bank so we use a lot of resources on things like that which affects a bit how much we get to go out to the employees.

M: A lot of people thinks that it would have been better to have an international framework that everyone should use, do you think that would have worked in practice?

I1: Yes, it would be more transparent, but it is difficult to make it work as there are a lot of differences. The classic difference is that if we give a mortgage to a customer and he is not able to pay back and we sell the house and he owes us 200.000 after that he still owes us that, while in America you can just deliver the key to the house and then that debt is gone. There the responsibility is moved closer to the financial institutions.

M: It will be difficult when the starting points are so different?

I1: Yes, there are differences, but they are not so different, so more similarities should be possible. It would make it easier to evaluate. The most important expenses for us are what it costs to collect the under-balance we have between lending and deposits, and if there had been more transparent, the assessment for the funders would have been more similar, and there would have been a more even competition.

M: Yes, I understand, but then I think I have got the answers I need.

I1: Yes, and if there should be anything more you can just contact me.

M: That's good, thank you! It was very interesting to hear what you had to say so thank you so much for meeting me.

I1: Thank you, it was fun. Good bye!

M: Good bye!

## ***Interview 2***

Me: Hello! Thank you for meeting me.

Interviewee 2: Hi! I1 that were here talked a bit about portfolio management systems, right?

M: Yes, that and credit management that I understood were his main areas.

I2: Yes. What do you think about when you think of risk management systems?

M: I think a bit about enterprise risk management, there is a lot of theory on that, also I think that, ehm, the impression I have is that you should not look at one risk alone, you should see it in the context of the whole business, market...

I2: Okay, yes, we don't have one system we can do everything in, that is a bit difficult, there are no systems like that, and it also is a bit difficult to make it. Then you will use enormous resources on making such a system that can collect data from the market and all the different types of risk within the corporation or the bank. So in a way there does not exist a system that can deliver everything you need within risk management yet. It will come, or there are systems that help you with parts of it, and also it comes more and more facilitated systems to treat different types [of risk]. But those that work with risk management, or our department then, we always have to use several systems and collaborate to get a continuous risk management.

M: Yes...

I2: But I can show you the system that we have. [Shows a presentation on the screen]

M: Yes, that would be nice.

I2: This is mainly operational risk. That is a part of the corporate governance, so it does not cover everything, or everything you can call corporate governance, but it is a part of it, and it surrounds that everyone has some visions or strategic goals, that is the main thing we manage from that we should have quality in everything we do. So this is a kind of quality system, and it is very nearly associated with operational risk. This is in that it can interpret mistakes or it can occur events that are unfortunate, it can be that we make a framework, make strategies routines and there might be some holes there, or maybe there is a development and then with all the new things that happen and how to use the new system when the customer's behavior changes, there can appear some kind of holes or weaknesses. So this system is meant to support us with different methods to manage risk and improvements, or quality and risk. And this system is built on different modules so there is inn data from different parts of the organization. And also, everything is documented and collected in one place and then we can see the context afterwards.

M: Yes...

I2: What we here, these two boxes [points to the screen] is about events that occur or complaints from customers, which then is inn data, so if something happens some place, like last year it was a truck that crashed into a post outside a bank in Finnmark and they lost the internet connection, so they were not able to help the customers in the same way, right, and that is not good, those customers does not get the experience that they wish, and maybe there are some cost to getting it fixed, maybe you get some replacement money, but it has a cost that is that the customers are not satisfied, or that there are actual costs in that someone has to work overtime to get things in place again, and there is that kind of information that is registered in the system when some kind of event occur. Another type of event can be, it can be some many different thing, but it can be when people that work in the bank tries to swindle or does something wrong, if a customer like for example an investment customer calls their broker and ask to buy this many stocks to this price, and then the broker put in the wrong price, then that can lead to the customer losing money, and it is our fault so we have to cover

it. Then it becomes a kind of event that is registered here, and over time we build a database the contains all those events and we can use that to teaching and improvements, and at the same time we have control over how large costs or how large losses that occurs based on those kinds of mistakes.

M: Is it used to see how large the risk is for that happening again?

I2: Yes, it can be used for that, this third box [points to the screen] have we called the analysis portal, and here you can do a risk analysis, and then you can of course use the data on previous events. If you for example are going to do a risk analysis on a process you think about what potential events can occur, and then can what kind of events we have actually had help. If these risk analyses are done regularly, for example once a year, then you can see, for example if you do a risk analysis in January, and then again January the next year, then you can see if what you based the first risk analysis on is actually correct, and see if those events you thought may occur have actually occurred during the last year, and what was the consequences of those events. So these different boxes are meant like that you can both put in data in each of them, but you can also use the data between the boxes. Also we have a box that is called control database here, there we input, when we work with risk management then we have some controls that we mean we should do to make sure that we have the risk situation that we think we have, and to make sure there is no mistakes made in these risk management processes, for example if we have a routine that says that something should be granted like this or that, and then we have people that work out there and that follows these routines and the credit manual and put in the data they should and says if they get a loan or not, and then we might need to control if people follows these routines and that cases that have come through have been treated properly, and that we keep an eye on what is happening. It will fall out sometimes, if large mistakes are made people will see it at once in the process, but you may need some samples to make sure that the processes work. These control points can be based on the risk analysis for example. Here you have thought about things that can occur, and then here you have controls to make sure that they don't occur [points to the model on the screen]. It can also be that in occur events that leads to that we have to do more controls.

M: Is it more of the quality work and follow-up that you work with or is it making sure that the systems work as they should?

I2: The quality work I would say is a total package, that when an event occur it is because of some kind of a quality shortcoming, so that then, on all these boxes if it is weaknesses, or if we can imagine that, so is there some events that you can not guard yourself against, but if you look at a risk analysis as we come to here, that there actually are weaknesses or you evaluate it as weaknesses or those that you talk to out in the line thinks that it is a weakness, then you have to start improvement measures. So improvement is one of the most key things here then, that you have a lot of data that tells you something about what happens in your organization, and what the risk level is, and what is the weaknesses in the risk management and really everything we do, then we have to start some measures to improve so that those events don't happen again, so that we don't have the same weaknesses next year. We have a mapping module here [points to the model on the screen] where you can put up for example questionnaires, and then you make different people in the organization evaluate those questions, and also we have a couple of fixed mappings every year where Finanstilsynet have made the guidelines for operational risk, for credit risk, for market risk, and we have turned those guidelines into questions and made questionnaires from them, and then we go through those questions with those responsible, like the credit chief and her that is director for that part of the organization, and also XX[I1] that is a part of the credit risk is included, and then we go through those questions and score ourselves and look at how the quality is compared to what Finanstilsynet thinks that we should have and what we think we should. And that again, all those weaknesses that are registered there become improvement measures

M: Is that a process where you work with people at different levels in the company?

I2: In a way yes, but it is a bit split, as you can not work that close with all the parts at the same time, so there are some places in the organization where they answer maybe one or two questionnaires during the year, while others, for example the credit chief, I work a bit closer with, because he is a part of the fixed questionnaires based on Finanstilsynet's module and a little closer with other things. As you understand there are some differences, but all levels in

the bank has a responsibility to report if there occur some events for example, so everyone is involved in this, but in different degrees.

M: Is this model [that is shown on the screen] developed with the help on employees in different departments, or is it you on the risk department that has developed it?

I2: Well, this system is developed by a company that started here in Tromsø, a small company that wanted to make a system to attend to these kind of problems, so a couple of years ago SpareBank 1 Nord-Norge entered a collaboration where we together with them have developed this, so that they get to develop a software that they in the long term can sell to other companies, but at the same time we get to develop what we need for this kind of risk management. Eventually, the other SpareBank 1 banks also entered here, so now most of the companies in the SpareBank 1 alliance has this system, and we have a group where representatives for each of the companies are included and helps to develop this system. It is mainly people from the risk management environments in the different banks, so there is not that much involvement from other parts of the organization and the lines, that it is not.

M: A bit back to the quality check, if there are large losses on businesses, is it quality in the systems related to that it should have been anticipated, or is it not that kind of loss you are concentrating on in this system?

I2: We don't included that much of credit losses within this, but it can be that it has happened a mistake that has led to a credit loss, but then it is in not a credit loss in a way, it is more that you know the risk is, and then you give the company a loan and then it goes bankrupt, that is a credit loss, but you have given a loan on the wrong terms, or you have broken a guideline or that person have not done their job, and have then given a loan to a company without knowing the risk, and without doing things the way you are supposed to, and then it becomes an operational loss. Because then it is not necessarily that this customer went bankrupt that is the reason to the loss, it could have been prevented if you had done things differently, or the way you are supposed to then.



M: So this model works mainly with the operational risk?

I2: Yes, credit loss is in a way what we live by, we give loans and we know that not everyone is going to pay back, that is a bank is always going to have losses, if not you have some very unlikely luck. So it is a part of the business. In my role that is not a weakness or a problem, it is just a part of the daily operations, so instead I focus on, when talking to the credit chief, that we evaluate that generally this and this happens, or it is a systematic error or weakness. Maybe we are not good enough on one of the evaluation points when granting loans, and then we need to think about how we can improve. Maybe we need more training, maybe we need to change the routines so that when they read the routines it is written more clearly so they are not doubting or misinterpreting what is written there. We are always looking for ways that we can get better and avoid losses and make the customer satisfied. The strategic goals we have, that is what we are working on. I can show you that framework here [puts it up on the screen]. When we think of establishing good risk management we often think of this figure or overview. If you are going to get something to work then you need, if you think on a process for example, then you have to design the process the right way, you need to have guidelines and routines so that people understand what they should do, you may need to have granting power on the right level so that you can control who can grant what and that it is done in the right way. Also you might need some tools that makes sure that for example a granting process and giving loans to customers happens efficiently, and that you have the support you need in that process. Also we have, in some instances it goes very much into details in the guidelines, in other instances it is more superficial, and then we might think more on the whole organization or a part of the organization where you need the correct organizing. Today we have for example team and team leaders, and then they have a leader over there again, and how should we organize this to make it as efficient as possible and to avoid mistakes. Maybe you need to work with the workflow, that a person follows the case the whole way, or that he is specialized on one area and then does his job and then sends it to the next person. After you have designed this in a good way you need colleagues that follows what you have told them to do, and that they have the right expertise and understanding around what they are supposed to do. Also you have the part about documentation and reporting and that they get the information they need, and that they give the organization the information that we need. And then when we for example have a survey about some area or we see that an event has occurred or we make an analysis on what types of risks we have, we

can come back to this [model] and see where we can make an effort to improve, can we improve the tools and systems so that for example what I talked about earlier about the one that was buying stocks and the wrong price was entered, maybe we can make it so that he get a message like “Oh, have you entered the right price her” or if he is going to buy for 100 kroners and then he enters 1000 kroners, then there is a control where the computers says that this was a way to large amount, so there is some kind of logical controls. Maybe we evaluate that the design is good enough, but that the understanding and expertise among those that are working with it needs to be better so then we need to implement some measures. So that is a bit about how we think about both risk management and control, but also with improvements.

M: When I talked to I1 earlier, he said that in the evaluation of customers there is room for individual reviews, and not only looking in the models and numbers, but if that evaluation is wrong and it leads to a loss, is that categorized under what you are working here and these models for operational losses?

I2: Weeeell, it can be operational. It can also be that if you look at that evaluation from an objective basis you can see that the evaluation wasn't good enough, so then there might be a problem we the understanding or expertise of that person that have done the evaluation. Then there can be an operational thing, if we see it several times or that it happens repeatedly from that person or several places in the organization then we might need to remind people of it, have meetings or training to raise the understanding. But it can also be that this person only have made an evaluation, you can not say if that evaluation was right or wrong, but nevertheless it ended in a loss, then it is more on the daily operations and the credit risk, and you have done your best but the customer goes bankrupt anyway, that you can never be totally safe from. So yes, you are touching a very central thing in this, that there are very many things that can be operational risk, but you can not treat everything as that, it is a degree of quality, and what we focus on is that the quality is good enough, we are never going to have 100% quality in everything we do, because that will cost an insane amount of money, and it is impossible to become perfect, but we work all the time with the most important areas and the largest weaknesses, and there we have a larger potential to become better, where it is a need to become better. If we see simple or cheap ways to make the quality better we

implement it, but sometimes we can only do so much, and the rest just have to be in a way, we can not prevent absolutely everything, it is a balance that you have to find.

M: The fact that the markets have become very dynamic and there are a lot of uncertainty and changes, has that made it more difficult to make these kind of systems and work with the quality, or is it made room for it in the models?

I2: Well, both yes and no. When there are a lot of changes happening around you, you need update all your evaluations, if not they are out of date, they are not relevant anymore. On the other side you need to rig your organization and the risk management department so that they are able to keep up, they are not only working with a routine today and then they don't understand anything tomorrow when things change, you make a dynamic organization so that they are used to work with changes and are able to change a little thing here and a little thing there. Sometimes there are larger changes that are happening so then they stop working like they did last year and then start to work in a different way. That is becoming more and more important, and those systems and methods we are using in the risk management need to be adjusted to those kind of changes, we don't look for specific structures, but we look for elements that repeats themselves. The design for example will not change if the customer change its behavior, they still need good guidance documents, so we see that the things that is in common for everyone, more generic things maybe, I don't know if that is the right words to use.

M: I understand what you mean. But is the focus that the employees themselves need to be more adaptable and see the changes or...

I2: Yes, we have a principle that says that even though I work in the risk management department I am not the one owning the risk, that is it those who work with granting loans and their leader, it is where the line defense is or it is those that are owning it, while I should be on the control side, and also I should be a part of supporting them and in a way make a framework and use these things that repeat to say something about the quality of what we do. So I should be more a facilitator and sparring partner, at the same time I should have an

overview of the risk level and report this to the Board. It is an interaction between the line and us, those who are working in the local banks and those here in this department in Tromsø.

M: Those that are working in the different banks or on different levels, are they giving feedback to you and your department, or can they ask questions if there is something they are unsure of or need support to?

I2: Yes, they are encouraged to ask questions if there is something they are wondering about. If they are unsure or they see a risk, because they are the ones closest and should have a different type of expertise than us, so then they are encouraged to share this with us and the rest of the organization so they also become aware of it and we can work together on how to solve this. And that is a thing we try to be good at, that if something occur, a challenge in one place in the organization then we try to learn from that and use that knowledge on other places too.

M: Is it the other departments within the alliance we are talking about then?

I2: Yes, or for example that the bank in Mo i Rana have a challenge or see something new that is happening then we as an organization try to make it like for example Alta also can make use of what Mo i Rana experienced. But more specific for me it will apply if there occur an event in Mo i Rana we make improvement measures that those in Alta can follow in case it happens there also, then we are ready, and try to prevent it.

M: On that 'culture and follow-up' [a part of the framework shown on the screen], is the focus on new employees and to teach them the organizational culture from the start?

I2: Yes, we have her in SpareBank 1 Nord-Norge, I don't know about the others in the alliance but I'm sure they have something similar, but we have what we call the SNN-school where all the employees are participating in a training program when they start here, and then

they go through all these boxes with culture, with strategic goals and they are introduced to risk and the management systems and the legal department and the different support departments they have here in Tromsø. A bit of the meaning with this SNN-school is to give them a good start, including culture and follow-up.

M: I have read some literature that says that a lot of the problems within risk management and the problems is the events happen where there are made wrong assessments because the employees don't understand what the effect is for the whole organization or that they don't see the goal for it or the context...

I2: Yes, the culture is a base element, it is nothing of what we do that works if the culture does not work, if people doesn't want to do it, if they don't have the understanding for what we do, and suboptimizes all the time, so that both the corporate leaders and leaders further down in the organization all the way down to each individual employee, it is important to focus on a common goal and that everything we do goes in the same direction. We have some visions and strategic goals that applies to the whole corporation.

M: Yes, I understand.

I2: I don't know how this hit for what you are looking for, have you got an understanding for what this system is?

M: Yes, and I think it was very interesting to see how you are actually working with this in practice, and the follow-up of the quality and that whole process.

I2: The thing is that this system is not finished yet, but we have started using it even though it is not finished and it is not how it is thought to become, because it has a very large potential, but we have not come that far in the development yet. What is good with this system is that everything you put in is documented, so if it a question occurs you can go and look for the

information in the different boxes, and when you implement thing, if you make an improvement measure or you have events you can put people in the organization as responsible for the event or improvement measure, and then that is followed up by the system. They then get an email telling them that they are responsible for an event or that now we have started a measure, and that needs to be finished then and then.

M: Is this done for every event or loss that is registered?

I2: Yes, someone is responsible to follow up that event. If there is a small event or that it is simple and you know what has happened there isn't that much analysis work, it is more if we need to implement some measures to improve, what is your evaluation of the consequences from this, is there some losses, those kind of simpler thing. In some cases it can be to see if this is something that happens repeatedly, is it large losses, is it about millions or a couple thousand, it is a bit of difference on the type of event. And also everyone, or at the moment it is only the leaders in the bank that have access to this system and should report events so they have a page like this [shows on the screen], this is my page, where you go in and see what kind of measures they have here. Here it says that I have six measures, and two of them are past due so those I need go and work on today. So you get an overview like this, and they get an email with a link to this if it has occurred an event within their responsibility area and that they need to take a look at it.

M: So all the leaders have their own page like this and an overview.

I2: Yes, and it is as I said under development, so there are more and more functions coming, and the thought is the people should have, if you are a leader at any level in the organization you should be able to see your responsibility area and your department and what type of events have occurred in your department that maybe someone below you have treated, what kind of improvement measures we have within your area and so forth. We have some plans for how we are going to improve the system.

M: It sounds very interesting and like there are a lot of opportunities with this system.

I2: Yes, it is absolutely interesting to work with. I work in a risk management department in a bank, so system development isn't really my job, but now I get to be a part of this and contribute and come with input to the development and how the systems should be so that it is adjusted and we get it the way we want. It is both interesting and educational, and it is very useful for an organization to have such a partnership where we can develop systems the way we want.

M: And also I wanted to ask how long have you worked in the company?

I2: I have worked in SpareBank 1 Nord-Norge for 5,5 years, eh, with risk management for 2,5 years. So I have not been here that long then.

M: Have you experienced a lot of changes within the bank industry over those years?

I2: Yes, that it has been. There are new regulations coming regularly that we need to adjust to. We have made some reports where we have chapters on what are the changes from last year. It is things that we need to adjust to and it is things that we need to inform the market about that we are doing differently. So when we deliver the numbers now in 2017 they can go and look at the same numbers we reported in 2016 and 2015, and if they know what we have done differently they also know how to relate these numbers to each other. People that doesn't know the bank world that well can get a different impression of the development if they don't know what has influenced the numbers. It also makes it easier to evaluate the banks. Also you are not a bank alone, so all the other banks have almost the same changes so you see a trend between all the banks, but we are also required to inform about it even though everyone also does the same.

M: Do you think that with the way the markets have developed the last years and are going to develop further that it is becoming more important with systems like this, and that it is maybe going to spread to the rest of the alliance also?

I2: Well, the whole alliance of the large banks, except for one, have this system now. It is going to be a bit more important forward when things changes faster it is also more important to have effective risk management processes so that you can have these common things that we talked about and implement it in things that are changing. If you have a system that makes it easier for you and that automatically document everything in one place and that follows up it becomes easier to make changes in your organization as you get a faster and more effective way of risk assessing things. If it takes two weeks to risk assess something it might be too late to implement the changes that is needed so it is important. At the same time there comes new requirements for the banks, new laws and rules that we have to follow, and we become dependent on, if we are going to avoid employing more and more people in the risk management department we need systems that helps us so that we become more effective. If not it is just cost for the bank. So it is important, and it will be important, with systems that helps us, that collects data and documents it, so it helps the risk management department and the people in the organization to make better decisions and implement the needed measures.

M: So the systems help with the reporting and getting the measures started faster than earlier?

I2: Yes, it might be. I don't know how much faster it is, before you had a list of things in excel and you had to manually follow up, it was a person sitting there and sending mail asking have you done this and have you done that, collecting the information and things like that, while now the systems do all of that so I don't have to spend time on it.

M: More efficient might be more the right word than faster?

I2: Yes, because then I focus my effort on other things, and the evaluation and overview of things and not just sitting there and sending emails and doing unnecessary work, it was very



nice to don't have to do that. Everyone still has some manual tasks, we aren't totally digitalized yet, but at least a system like this helps.

M: I understand. But I see that we are coming to the end of our time. It was very interesting to hear about the development of these systems and how they are used, and how you work. Thank you so much for taking the time to meet me!

I2: You're welcome, no problem at all!

### ***Interview 3***

Me: Hi! Thank you for meeting me.

Interviewee 3: Hi! You're welcome. Should I start by presenting what I am working with?

M: Yes, that would be nice.

I3: So my name is XX and I am the leader for risk management and IT in the bank. I have worked in the bank for 34 years I think it is soon and I have worked mostly here in the office, I started out in the lines, but have been an internal auditor with the responsibility for the auditing for 7 years and chief financial officer for 10 years. And then the last 10 years it is within risk management that I have been working. So it has been an exciting journey. A lot of things have happened in banks and a lot of new thing and a lot of changes.

M: You have been a part of a lot of changes?

I3: Yes, it has required very much from the organization what we are doing, not the least related to the Board, I work a lot towards the Board and towards the management in relation to creating understanding for a lot of what we are so it has been a fun journey on a lot of areas. But do you want to do this as an interview or should I have a presentation or what do you want?

M: I have some questions, but if you have prepared a presentation we can take that first.

I3: Well, I'm not sure what you have talked about the others about, I1 was maybe a lot of credit and I2 maybe more on op. risk [operational risk] I would think?

M: Yes, and a bit around the quality systems you are developing.

I3: Yes, but then I can choose some slides related to the use [from the PowerPoint presentation on the screen]. There it is. I will say that I think it is important when working with risk management to have some strategic inputs, and then you can not just discuss management and control, you need to think about the bank business model and what it is you actually are working with. The way we are working we have started using a concept that is corporate governance which is what we are working based on. It is more of a total package related to that one side that is what we have here [on the presentation on the screen], in the bottom we have our vision for Northern-Norway that is very strong, we say something about our DNA and who we should be as an organization, how should the customers see us, the market see us and then we have made five clear strategic goals in the bank. And then we have made the strategy very simple, but that is on the one side it is very simple, but it is also very powerful because you can relate something to the five strategic goals at all times. And also we of course have a set with values at the bottom. Related to the employees and so, that is in a way the bottom layer. But then we have said that that is not what it is all about, we have to follow a very strict regime related to management and control in finance. It's clear, in a way we manage our customer's values, bank is really a transformation from customer deposit over to lending, and then that isn't always the same amount, so we always need to get some money from the market, but then we need to have control over that risk. The moment I lend some money to someone I take a risk, and that way risk management becomes very important in finance. And also you have the other side where we have a capital base on xx billions today, and we have some owners that expect returns from that, so the way we use that capital to create values is important, how are we allocating that capital and in which areas. Bank traditionally have been a lot of credit and focus on credit, but there pops up many, many, many new risk areas that are important, where reputation risk might be the most important today in finance. And then you have at the top then, that you have a good capital management, a good profitability management, then you will most often have a good profitability, so profitability management at the top is important, but it has more dimensions, because then you include cost efficiency and the income mix, the composition of the claims, how your top line looks. So on the one side you have that business, market scale strategies that are the offensive thinking, and on the other side you have management and control which is, you can call it defensive or how you are managing the organizations. And all of this we should be in

control over, that have been a journey for us, this model has been created the later years after we started thinking like this.

M: Because risk hasn't always been seen in relation to strategy, that is newer?

I3: Yes, it starts with the strategy at the bottom, of course it starts there, and then there is out to, we have made a document structure that is at the top, the risk management statement, which say what we put as guidelines for the different risk areas. It starts there, with what kind of market we are in, we are in Northern-Norway, what are the opportunities we have and how can we exploit these opportunities and what kind of risk are we willing to take for these opportunities. You can say that risk management is about what kind of volatility are you willing to take into your result. Within risk there will always be fluctuations, there will be very good years, but there are also very bad years when you take risk. So in a way we try to take down the volatility so that we are more predictable to the market related to returns and to our owners. And in a way it is, if you put on those glasses we have the management document, let me see, have someone gone through the organizational chart?

M: No...

I3: Shall we see, there are two main directions of organizing, we have chosen a region structure [shows the organizational chart on the screen]. Many choose a diversification, that they organize after PM-areas, while we have a region structure at the bottom that is leading for how we are serving the market, and with the traditional departments where one of them are risk management, and if you go one step over the CEO you have the internal auditing, you have an external auditor, and you have the Board which is a requirement in finance today. Traditionally you talk about a management model that have three defense lines, we have made it into five defense lines. At the end we have the Board which in a way sets the frame which is based on the government's laws and regulations, but it is the Board that decides on the strategies, they set the management document, and then they give that to the CEO which is responsible for putting it into life together with the top management. So that is the starting point, and then it is the business areas that exercise this, those are the one operating in the

market and that should follow what we have said. And then we have risk management and compliance which is a defense line after the business areas that looks after if this is ok, are we within the lines, and then we have the internal audition after that again. It is very much a team structure within finance related to the different responsibility areas, both connected to the offensive and defensive. But the most important with risk management as I say is what is risk management, is it only management. I usually say when I have a lecture for new employees, then I ask what is the largest risk, if you are going to think, within a bank. Most people say that it is credit, it is liquidity, it is making money, but the largest risk might be that you are not able to take care of the market opportunities every day. Because if we are not able to have a healthy growth we will die, then we will not be able to earn equity, so to be in the market and have a healthy growth all the time, that is extremely important related to risk management. It can be possibilities and also it is a threat that you need to have control over.

M: A lot of people that are not working within economy or finance especially are thinking that risk is dangerous and should be avoided, but they don't think about the it can be possibilities...

I3: True, and that is something we have spent a lot of time on over the least years, to turn it over to actually being possibilities that we should operate and exploit. So therefore we are saying when writing the risk reports that you often are focusing on deposits and withdrawals, but we often start with a business analysis on how our top line is looking in relation to the possibilities out there, where are our growth coming from, from which segments and areas are we on the right path. It is very important for us to have focus on those areas. This is a presentation that I have made as a guidance to the Board [talking about the presentation on the screen], and to go from the vision to how you follow up, how we communicate is important. For the Board there are in a way three main parts. One of them is that they make the strategies, which direction, where are we going, we should move based on the business plans we have. The second is how robust our framework is related to the management documents that we have, how are we going to follow up this. And then the third is how we inform the market about what we are planning to do and what we are doing. All of that it is very important for the Board to have control over. To work within the Board are though and a balancing act, it is fun to work with strategies, what should we do, we have a gift fund so we

can give out gifts, but then also to work with risk management and the framework is very important for them, to have a robust framework at the bottom. And also of course that pillar, pillar 3, that say that it is requirements to how we communicate our budget plan, it is strict requirements to the financial plan and extended requirements on the risk side.

M: Isn't it also a lot of standards only for banks that you have to follow?

I3: Yes, it is. I think it is a good one, I often use that from Amundsen and Scott and them, they had the same goal, but they chose two very different strategies, so working with strategies and directions is very important, and we see that related to what kind of risk we are taking, what do you have of control mechanisms in relation to loans, if you think about what can happen you are prepared for it. And also it is a bit like if you come to a formal bank, I can try to explain a bit here [shows a model on the screen]. If you think about the management, then you can say that the easiest to work with here is when you make a business plan, this is what we are going to do in 2017. But then like you say it is a strict regime for bank, a lot of requirements, and that is something that have occurred over the last years, it wasn't like that before. One thing we work with is a capital analysis, do we have enough capital to operate those risks we have now when meeting the future, then we go in and stresses the bank. Are we robust enough to meet a decline. The government is very focused on the financial crisis, and that we have seen international, it is not just banks that goes down, it is societies that have large problems because the banks doesn't do a good enough job. And then in the next step we ask given that we get problems, what possibilities do we have of restarting our operations. What can we sell in our balance sheet, how can we build a robustness again so that we go over to normal operations again. And then there is worst case, that there can come a point where the government takes over the control and we enter a winding up phase. Within all of this it is very important with a risk analysis and strategies, what kind of risk appetite do we have. This is something we work with yearly, and it is a document that go to the Board and to the government, and well, we work with it yearly but it is send to the government every second year. This is a very important formal document bound to laws and regulations. But that is maybe the most important job that we do in a way. It is a bit like risk analysis, how are we working structured with risk, it is a field that has become much, much more important the last years than it was earlier. Of course, we have worked with risk, but not with these glasses

on. It maybe talked about when we were an IRB bank and the scoring models and that, it has given us a different type of information about the customers, but the most important for us is to work with the right side [on the model on the screen], what I call for tail risk. Is there any types of risk that can threaten our existence, which is related to what we talked about in coming to a restoring phase. Of course, that should not be many, it can be everything from if we have a heavy incentive in the oil sector it is large losses because of the oil prices falling, it can affect us. But what is maybe the largest risk is about reputation losses, that you have an IT-event that is very heavy, are that to customers loses their trust on the banks, and that you have one or more reputation cases that affects if “do you still believe them”. When you have your savings in our bank you have a basic trust in that we manage your savings in a good way. So of course trust is very crucial here. That is one of the sides of risk that we are working with. But then you have what is in the middle that is about that we make a business plan for the next year and say that what we are doing now should give us 11-12% return on the equity. Then it is to do an analysis that tells us if there are some risks that can threaten our strategic goal, maybe it is in the market, maybe it is a loss event that can threaten our goal achievement. And then if you go all the way to the left it is what a call the normal cost of losses, we have some losses, our business idea is to earn money on taking risk.

M: There is no perfect model that avoids losses.

I3: No, and we can separate it into two. The first is losses that occurs because we don't do a good enough job, those we need to get rid of, we should not lose money because we do a bad job. But where we lose money because the market is moving we need to be able to withstand, that macro events happens and things like that, but we should reduce what we call operational losses, which is that we are not good enough or that we make too many mistakes, that can be reduced. So when working with risk, losses and goal achievement we work with all those strings, and that is what we have developed over the last years, and also it is what I said earlier, it is about what volatility do we want in the bank, what kind of risk do we wish to take related to if it is fluctuations, should we allow that we have some losses. The later years we have been clear in communication to the market that we concentrate on the core business, and removed places we don't earn money, and then we removed investments in Russia, we were heavy in the stock market there so we were both a financial actor and an equity actor, so that

we don't do anymore, and we have also removed ourselves from the Norwegian bank in Oslo. That has brought our volatility down, and it has been very important in relation to the market and the communication to the market. It has been a lot here in relation to risk management, and you can say that things have developed and the bank has become more and more mature as we think about risk management in a totally different way. So that is a general short introduction to the bank and then I'm sure you have some questions.

M: Yes, you said that how people view risk management have change a lot, is it a lot that have happened after the financial crisis, or has it been more independent of that?

I3: Well, you can say that there was a change during the financial crisis, but then Norway wasn't that heavily hit by the financial crisis, but then you can maybe say that we have a more robust macro and diversified industries. On the other side we have a robust national economy so the government was able to implement measures in a totally different way than maybe other countries could. And then the third is that the government had regulated Norwegian banks quite a lot stricter than what we saw in European banks.

M: Already before the crisis?

I3: Yes, already before, so they were tougher with our credit models, we had stricter capital requirements, and also the laws related to how you calculate the capital was a bit different in Norwegian banks compared to international banks so we started with stricter regulation which made the banks more robust. And also we didn't get the large, or we did get large losses on the bond portfolio and the financial part of the bank, but we did not have that much on lending. So yes, we are hit in to ways, we are hit by the European regulations as Norway is a part of EEA we have to follow it, but in Norway we are really regulated stricter than those regulations imply, so we have felt that the government in Norway have had a stricter politic then what they did earlier. And that we can see in the mortgage insurance that they have tightened it. What the government want is to avoid a financial imbalance, and that is why they want that regulation. But we are not worried about losing a lot of money in the stock market, but we are worried about that moment when the households need to tighten their



consumption, then the industries are going to be heavily hit. Related to consumer loans on electronics, travel and hotels. They are going to feel that. And then we can like or not like or agree or disagree with the government, we do like to tease a bit about the stricter regulations, and that has something to do with the competitive advantage, what we see is that Swedish banks especially have kinder regulations than the Norwegian and we meet them in the market every day, they are in Norway, and we see that it is difficult to be competitive with low risk customers since they have lower capital requirements than the Norwegian banks. So yes, we have felt that the Norwegian banks are a lot stricter regulated, but now most Norwegian banks are capitalized, that is finished capitalized, so then the competitive situation is going to normalize in the Norwegian market. But I am also glad that they were strict because we see that the Norwegian market is working in a totally different way than other countries.

M: Yes. And you are a part of the development and implementation of the risk systems if I understood correctly?

I3: Yes.

M: When you are working with developing the systems, are you in contact with the other departments where it is going to be used or are you working more in the office with the development itself?

I3: Well, we are working in different ways with the development. We are a part of an alliance with SpareBank 1, so we are working a lot within that community, for example what I2 was talking about with the risk and quality system that started here with us in SpareBank 1 Nord-Norge, and then the other banks have joined in, and that is often how things happen with an alliance, that one bank come up with something smart and then the other banks join in to find a common solution. But I don't think the most important is the system solutions themselves, the most important is what I call the culture part. We can work as much as we want on the risk systems, but if those that are using them don't understand what we are doing we are not going anywhere. That is touching a bit what we say about good corporate governance and good risk management fits like a hand in a glove, it is about leadership, communication, it is

of course also about following what we have said. It is implementation, follow-up, and the last part is the attitude part which is hard to work with. If the employees don't understand why it is important we are never going to succeed. Related to the development we have some user groups who tests new things and then it comes to a point where you say that it is good enough and then you implement it in the whole organization. It is a training, a communication of why we do it and why it is important. And then you can say that it is easy to say that we do this because the government have said that that is how it should be, but if we are not able to sell that this is important for the operation of the bank...

M: To the employees?

I3: Yes, to the employees, then we are going to lose. They need to understand that this is something that we are going to use every day and not just because the government say so. So you need to feel that this is something I need in the way I am working and in the daily with the management and everything.

M: And see the value of it?

I3: And to see the value of it. And also it is of course, I usually say that it is easy to say that the leaders should be in front, but all the employees has a responsibility to make sure they are updated and understand what the management system is and what the framework is, and then the leader has a special responsibility to make sure that everything is in place for the employees to be able to do that.

M: But when the system developed and finished within the alliance, are you working individually with how to implement it in the bank?

I3: Yes, because when it is moved out of the alliance and within the implementation it becomes a bank responsibility. We have support from the alliance, but it is us as a bank that

are responsible for using this together with our employees. When you are developing you need to make sure you include those in operations because they are going to take over the baton and make sure that it becomes a success. So a part of working on a project is that it is in the projects nature that it is not done until it is put to use. It is exciting to develop, and then it is often not as exciting to implement, so to finish and evaluate if we have gotten the effects we wished for is very important for the development of a project model. And then there is really the different departments in the bank that is owning the implementation and that it becomes a success and helps the line to use and understand it.

M: Do you work a lot on feedback and support in the implementation phase?

I3: Yes, we have said that it is important with continuous feedback, and also we have some standard procedures where we can have a questionnaire to see if it has had the effect, or we can look at goals, it is many ways to measure the effect on, financial measurements is very easy and has a special effect and is very measureable sizes, but many times it is observable things, are we able to change the way we are working. We can just say that a number with two lines under it is the answer, but we need to see that a change has happened, and maybe also the customer has experienced a change in how we do things. I think that both when we are working with a goal structure that measures the effects, at the same time as we get feedback from those that are using them that this is something they have an advantage of using, but if we do it like this or that it will be even better. It is some different ways that we are following up on it.

M: Is it one system and one model that you develop and implement or are there different ones on the different departments and related to the customer type?

I3: Yes, it will be, some systems are all-encompassing, but the closer you get to the customer level, the more it includes. And then there are some that are just a management system that only includes the leaders, so there are some differences on how they work, and there can be even narrower systems that only hit one department, for example the consolidation of statements and those corporate issues, so it is dependent on how wide the work is. In relation

to the line there is if it is PM or BM but it is pretty similar how the work with the implementation towards those in the first line.

M: Is it you here that work with the customizations for the different departments and responsibilities?

I3: When we are working within the different projects it is often those at that department that owns it and sits with it, but we put together interdisciplinary projects that involves IT and that process side in relation to what should be included, but the one that is going to take into the operations need to be involved and have ownership to it. And then you also have some heavy projects that is within the alliance, we have a heavy IT-environment and a common IT development related to digital channels, so of course we are not a part of all the projects as much, but then again the implementation is very important for the different leaders.

M: I2 mentioned a bit about automatization of systems, does that apply to the systems you are working with also?

I3: Yes, I am working with IT, so it hits the IT side, I am in the management side there. In first place we work with simple backoffice functions and the automatization, but it is going to hit everyone both directly out towards the customers and us as here at this department, the reporting, simplification and improvement, then the robotification, that is going to hit us in the wide. Now we have started to learn how to use it, we have started a bit simple with very simple procedures and have automatized them. And then it is like, there is a lot about it in media that bank, and DnB says that bank is an IT-company, but bank is bank, and IT is a tool, so I think It will be a part of revolutionizing bank, so the customers will be doing more themselves, but the crafts of bank will be at the bottom both for funding and saving, and those areas that are going to be put together and be distributed in another way in the future. We can't talk like it is technology companies that are going to take over for the bank, because the craft is at the bottom and is very important.

M: We need people to make a lot of the evaluations and...

I3: Yes, the lending structure is already fluttering and says that you may make algorithms, but it should not be a black box, I as a customer should be able to come to you and ask why the machine said no to me, what kind of evaluation was behind me getting a yes or a no, so in a way I can demand to understand those decisions that is taken through the algorithms. It is not going to be that easy that you just make some snippets that no one understand and that it becomes a black box that just lays there and does everything.

M: You may lose some of the customer service also?

I3: Yes, I think it is a bit that feeling, we are very clear about our vision for Northern-Norway that we should be in Northern-Norway and have a unique opportunity to understand the market much better than anyone else does, and we have said the we are still going to be in 38 places and we should be close to the customer. We still think there is some value in physical contact, and that we are talking to the customer and I think that the content of consulting is going to be totally different in the future compared to what it is today. So we have to change, but I still think the human contact have some value, and you can see that when buying something based on how expensive it is people like to talk to someone. To buy a pair of pants on the internet is easy to do, but if I am buying an expensive stereo system or a car I want to talk to someone before buying it. There is a lot of developments within the technology that bring forward the changes, and the technology can help take down the amount of mistakes, make production more efficient and make it easier, and also a lot of the manpower can be moved so that they don't have to do small things, but instead talks to the customers and have active consulting and help the customers with that. And culture and attitude will be extremely important here, and that we are working with continuously. If we look at how things have changed it is related to the reporting and it is some standards that is there that should be communicated to the market and also you have the internal which we call the strategic scorecard that we try to put together, and this is some of the clue for what we try to put together. When I started in banking in the 80's it was one parameter and that was output growth, who had the most success to grow with. Now we have put together both the position,

are we able to make the numbers and our vision, the customers and how satisfied they are, the employees and if they like working here and are we getting the best employees, do we have quality in everything we do, and then the most important is the economics. So we have a very different composition in the way we follow up things, and what we are going to measure compared to what we had only 10 years ago. And also you have build a set of corporate governance systems, and on the top we have the strategic management control and the support systems becomes a lot of details, but we have to be able to lift up some strategic perspective and see if that is line with the long term goals and what we have said we should succeed with. And also it is the fact that risk in bank today is something very different to when we started, now it is more composite, we are lending 20 billions in the market all the time, and they need to trust us to lend us that money, and therefore we have chosen to rate ourselves, we have two international agencies that are rating us every year and look at how robust the bank is for those that are going to lend us money. And then you have maybe the largest risk as I say which is operational risk and that is in the way we are working and reputation and how good we are at realizing our strategies, and that might be the biggest risks going forward. If we have an unfaithful servant that is much larger risk than losing on an event. So to work on attitudes and being safe with the people you employ, and especially with those working with technology it is important to not just have the right expertise but also the right attitudes related to the possibility of manipulating that is present. I have said that risk management have changed from where we earlier were afraid of being robbed, that they were going to come to the bank and take money from the safe, where it now is managing information and take care of the value and knowledge about the customer and the information about the customer and manage that in a good way. Where we are managing the information well, and that is an advantage banks have that we have trust in the market, that the customers are trusting us, and then it is important that we keep building on that and manage the information will further both in relation to algorithms and the way we handle the information and the way we communicate with the market.

M: It requires different security systems than earlier?

I3: Totally different systems! And it is not for nothing that the privacy policies are there in relation to management of information. It is an exciting field, it has happened extremely much

here the last 10 years, from we started working on so called credit and scoring models to now, really where we have a shift towards soft factors that affects the risk in another way, it is a field that becomes much more composite that it was earlier.

M: It is a constant development...

I3: Yes, and we look towards both international trends, collaborate with the larger credit companies and the consulting companies to all the time think in a new way. But at the end of the day it is not the system that is important, it is the way that we are using things and the way people understand why it should be this way. When people come to work they should understand the business side, but also the risk side, and then you have to put that together.

M: A lot of literature discuss the development related to more dynamic markets and more uncertainty, of it is going to be stricter and more standards or if there is going to be less standards and more freedom to act, do you have any thoughts about where that development is going?

I3: Yes, I think it is a limit for regulations, it is not everything you are able to regulate, then you will just be operating within a box all the time and that is not possible I think. It is more about adapting the company to the dynamic market, especially related to the digitalization, but I also see it as a possibility to simplify management and control in that we use the technology there too, it is more embedded in the systems and what you are doing, and that is what you see in a lot of the improvement of efficiency on the customer level, when you go to an online store and use it today it is simple, you get a yes or a no. Either you are on the motorway or you are off the motorway. And in that way there are possibilities to simplify and improve the consumer rights in a dynamic risk management perspective. And also I don't think you can regulate everything because in the end it is about what kind of strategy you have, how offensive do you wish to be, and how do the employees understand the new business model for the market you are operating in. It is not an A and B answer to say it like that.

M: Do you think that if you put regulations and rules on everything and on the employees it will only limit them?

I3: Yes, I think so, and then there is about what have to be regulated and where should they be allowed to think themselves and use creativity and innovativeness to develop things. And then we should of course have respect for people, we are starting to get very much information on each customer and how that is managed, because if you abuse that you are moving towards dangerous waters. You need to handle it in a good way so that the customer feel that the information the bank have is used to their advantage, it should help them simplify things, and then you win that battle. But of course, the risk is there, the more people can abuse it, the more it can affect everyone, so then it will be a regulation. That was what we saw after the financial crisis, we got a regulation on the whole financial market in a new way.

M: And then maybe every time something goings wrong it will be known?

I3: Yes, that is true, and that is a risk in itself. IT is in a way a lot of risk and a lot of risk to handle with IT systems. And also we see that criminals take new roads and tries, it is all the time attacks on data, the database, and to get inside our firewall to get something. When we got a new CEO he chose to increase the decentralized powers, since they are the ones closest to the customers, but then we also had to strengthen our control functions and create some regional control responsible. And then it is a consequence that bank is a lot of management and control, you can't get away from that. When you increase the powers you need to make sure you have control over what they are doing. It is exciting, it is a lot of focus on digitalizing and use of analytical tools that use customer information and turn it into measures, and that is the hot topic nowadays, to build good CRM-systems.

M: Yes...

I3: But then you also have the other side that I2 talked about, that now we have possibilities to do something different, we use the technology to have support functions, you don't have 4-5



binders anymore, now you can just search and get all the information you need. So there the technology has been very good and has helped us simplify and improve. It is a lot of exciting and a lot of good things.

M: Yes, it is a very interesting field to follow, and it has been very interesting to get to hear today how you work with risk and your view on it.

I3: Yes, I think it has been very fun, and we have a competent environment here. It will be exciting to follow the development further.

M: Definitely! But thank you so much for meeting me, it was very nice.

I3: Yes, no problem, talk to you later!

M: Yes, good bye!

#### ***Interview 4 (phone interview)***

Me: Hi! This is Silje Lorentzen. I am calling about the interview for my master.

Interviewee 4: That's right!

M: Should I just start with the questions or do you want me to present my thesis a bit, I don't know if you have heard what I am writing about?

I4: Preferably the latter, I would like to know a bit about what I am going to answer about.

M: Yes, I am on the last year of my master. I am writing a thesis about risk management and wanted to write about a smaller bank and about how the development and implementation of the systems is done there. So then I first have some more general questions about you and then more about risk and risk understanding and the systems that you are using.

I4: Yes, hopefully I can help a bit, let's go.

M: Firstly I was wondering for how long you have worked in the company?

I4: In SpareBank 1 Nord-Norge I have worked since 2008.

M: Okay, and then I wondered what your main responsibilities or tasks in the bank are?

I4: I am responsible for the credit quality on an overall level, from the granting to powers to and follow-up on cases.

M: From XX I understood that you worked with the people working in the lines also?

I4: Yes, that is correct, I follow up the quality especially towards the bank chief and the consultants.

M: So, what is your view on risk, is it something that should be avoided, is it possibilities?

I4: If you mean if I am risk averse, I am not. To say it like this, as long as we know the risk and know how to handle it, it is okay with risk. But don't misunderstand in the way that I am not searching for risk. But risk that we understand and can handle, that is in a way the short version of bank.

M: Yes. And when you working with risk, do you look each customer and each risk by them self, or do you look at it in a larger picture with the whole organization?

I4: Both. Right now I am working with a special kind of customer and is on portfolio level where we see that we have taken a bit too much risk, so I look at each individual case and evaluate them. But that doesn't mean that if we get a very good customer within the same industry that we say no because we have already taken risk within that industry, even though we will be a bit stricter. But if the customer has performed well over a longer period and all the key figures implies that that is going to continue and we are secured we will still want to keep the customer.

M: Is there a special framework that is used to evaluate customers?

I4: Yes, we have our policy that we are using, that is leading for, you can say that it starts with the strategy and credit strategy and from there we get the policy. That is the overall, but

then we have analysis and the tools and mostly the craft that the consultant use that I am part of helping them with and find solutions for if this is something they can use.

M: Are you a part of developing the risk systems or policies that are used?

I4: Well, this you probably know, but SpareBank 1 was organized in 5 different regions, from today it is 4 regions, and then you have a credit responsible in each region and we are one of the institutions that are a part of the discussion when we are setting the policy for the credit department. And what we agree on with the credit department is what is used in the credit departments in the different banks.

M: Is this within the alliance, and then it is distributed to all the banks?

I4: No, not when it comes to the policy. The credit chiefs have meetings and we are borrowing from each other, but the policy is something that each individual bank has. What the other have talked about with the alliance is more about the risk systems, but the credit policy is it each individual bank that develop.

M: I understand. But when it comes to the development of the systems, are you involved in that?

I4: No, we give input and come with wishes, and point out errors that should be looked at, but other than that we are not involved. And that is what happens within the alliance.

M: But when those systems is developed and are going to be implemented, are you a part of that?

I4: Yes, we are in a way the entry to the line and the departments on the credit side, so us credit responsible are employed within a region, so we are not a part of the credit department, but we work with a lot of the same things. So yes, we are a part of the implementation.

M: Are you a part of it with the whole Northern-Norway, or are you only working with a part of it?

I4: Troms, region Troms, and that is North-Troms and Tromsø, and then one bank in Hålogaland and one in Finnmark.

M: Okay, but when you are working with the implementation, do you have any direct contact with the people working in the different banks and departments and the consultants?

I4: Yes, when we have started the implementation, and when I talk about implementation it is mainly about the policy and when that is revised. So when I work with implementation it is mainly the policy and management documents that are implemented. When there are larger changes on the system itself we are more a part of information and passing on the information, but with policy I have days when I talked the consultants on both the private and corporate market, where we go through the most important changes and have discussion about the use of it.

M: Then you are talking with the people working out in the lines?

I4: Yes, that is correct.

M: And are they able to come with feedback and suggestions?

I4: Yes, it was actually this year that we had a very wide round with the policy where we sent out a questionnaire to everyone that is working with credit and then also the consultants that are working with credit, where they could come with suggestions to areas that need improvement corrections that should be made. So it was a very wide involvement, it hasn't been that wide before, so this was the first year we did that.

M: Is that suggestions that are consider next time the policy is revised or is it considered directly in the implementation?

I4: It was used when we revised the policy, then we went through every single suggestion and discussed it, and some were taken into consideration and used, and some got feedback on why we didn't.

M: You are working with consultants on both the private and corporate market?

I4: Yes, I do.

M: Is there any differences in the policies that are developed for those markets?

I4: Yes, it is. For the private market the policy is more technical, more like click here, click there in the systems. The documents are also about the mortgage industry, but you have some external stakeholders that affects the policy related to policy on mortgages. While at the corporate market it is in a higher degree made towards industries and individual customers, so it is a more comprehensive manual and policies for the corporate market.

M: There are a lot of discussions about how the future is going to be for risk management, have you experienced that there have been a lot of changes and developments within what you are working with?

I4: Yes, that is has been. We see that within credit and credit granting especially they are trying to simplify and facilitate for automatization in the highest degree possible, that is something that is going to continue long into the future. And also it is maybe a bit that they wish to go more towards portfolio management, which is the other part of credit. One thing is when we have granted the loan, the other thing will then be about how we are living with the customers after we have granted the loan.

M: Are the people that are working in the lines also working with following up on customers?

I4: Yes, you can say that is more of a reactive job where you follow up on customers that through the score models and through behavior that can automatically be picked up on have been picked out and we send a list to the consultants over customers they need to follow up on. But there it has also been some changes within the other banks also that we need to measure the importance towards time used, what are they spending most time on, is it granting or is it follow-up.

M: Yes. And then I was wondering if you think standards and regulation will become stricter or if they will be more open for banks?

I4: Well, we have become very standardized and it clearly has some advantages, but you need to be careful, when it comes to credit, you need to be careful about standardizing it too much related to performing the craft of banking, because in the end when it comes to credit it is a craft also.

M: The consultants need to be able to make individual assessments?

I4: Yes, definitely, definitely.

M: You said that it has become very standardized now, is that over the later years?

I4: Yes, I have worked in a bank since 2003 since I finished my education, and that is only 14 years ago and then we had some changes on most areas, before, especially for smaller bank, it was more room for individual assessments on corporate customers, but that possibility has become smaller and smaller

M: I understand. But since you have worked in banking since 2003, have there been a lot of changes in how the systems are developed?

I4: Yes, I would say that. Earlier we didn't think about capital bindings at all, or rate of return, or anything, it was much simpler parameters to work after. This has come after the implementation of IRB, that is something that has come the later years. So you have maybe turned around and think more about top line and returns and not just breaking even. So it has definitely been a shift.

M: Just a bit back, related to the different banks within your region, is there differences in what kind of customers they have and the policy they use and how they use the systems?

I4: Well, we have the same documents and policy and systems in the whole bank, but then with credit and credit culture and understanding and use it will vary from region to region and with the different financial offices, and with the local offices it can be different. We are reporting especially on the private market on the policies and on the offices, and there are all time large differences regionally, but also between each office, they have the same documents and policies, but how they follow and use them can vary very much. And then you can point to different reasons and say that the industries or the job market or the salaries at my office or my area is so different from those that are within the policies, and that can be an explanation to why the break the policy. It might not be a good explanation, but that is how they explain it. So no, there is no differences in the documents and policies, but there are very different uses.



M: Do you have to work differently with the implementation in the different banks because of that?

I4: Yes, and that also means that, well part of my job is to help with making these differences smaller, that was why my position was created in the first place, to make sure we have a more unified way to work with credit in the banks. So it is definitely something that the bank focuses on.

M: When you work with quality, we talked a bit about it in the other interviews, that if people make individual assessments and mistakes are made there that creates losses for the bank, is that something you work towards with the quality work?

I4: Well, it is a bit about what you mean by different types of mistakes, if you have used your head and been aware of the risk but have chosen to take it, that is one thing, but if you are able to make individual assessment and you choose to do it you will not be punished for it, but our business is to sometimes take hold, if we didn't we hadn't been allowed to take risk, but if you make operational mistakes that inflicts losses, then it is a bit more serious, if you have not made sure the safety documents are signed and things like that, because then we react immediately because then we are taking a risk that we hadn't been aware of, and that is much worse.

M: Is it easy to separate where...

I4: Yes. For every loan that is given we are making an exposition that say what kind of evaluations has been made and what terms and conditions it is based on. So if someone has missed some of those points it will be clear, especially on the corporate market. But another thing is if you have a loss on a customer because you have made an operational mistake.

M: Are you following up when there are operational mistakes also?

I4: Yes.

M: Are you using the quality systems for operational risk that I2 is a part of the development of?

I4: Yes, we used them a little bit, but I might have a more old fashioned approach when working on it, called excel, and that work very well.

M: But if a customer creates a loss, are you working with finding where the mistake has been made?

I4: Yes, and you can say that the moment we discover the mistake and there is a red light flashing on the computer when the customer's name come up we start looking for who was the last one granting a loan, and we have a routine on that. But when we are in the phase of deciding that this is a customer where we need to take action, then we hand it over to a central department, because then we are over in a realization phase, and that is not something I work with.

M: You are working more with follow-up and discovering the mistakes?

I4: Yes, and to make the decision that we are going realize something, when that decision is made someone else takes over.

M: Okay. But then I think have gotten answers on all the questions I had.

I4: And if there is something else you can just send an email.

M: Okay, that's good. Thank you so much for taking the time to talk to me.

I4: No problem, and good luck with your thesis.

M: Thank you! Good bye.

I4: Good bye.